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WESTERN BANK NOTE & ENG. CO. CHICAGO

Yours Truly,
R. W. Pierson

THE PEOPLE'S
COMMON SENSE
MEDICAL ADVISER
IN PLAIN ENGLISH;
OR,
MEDICINE SIMPLIFIED.

BY

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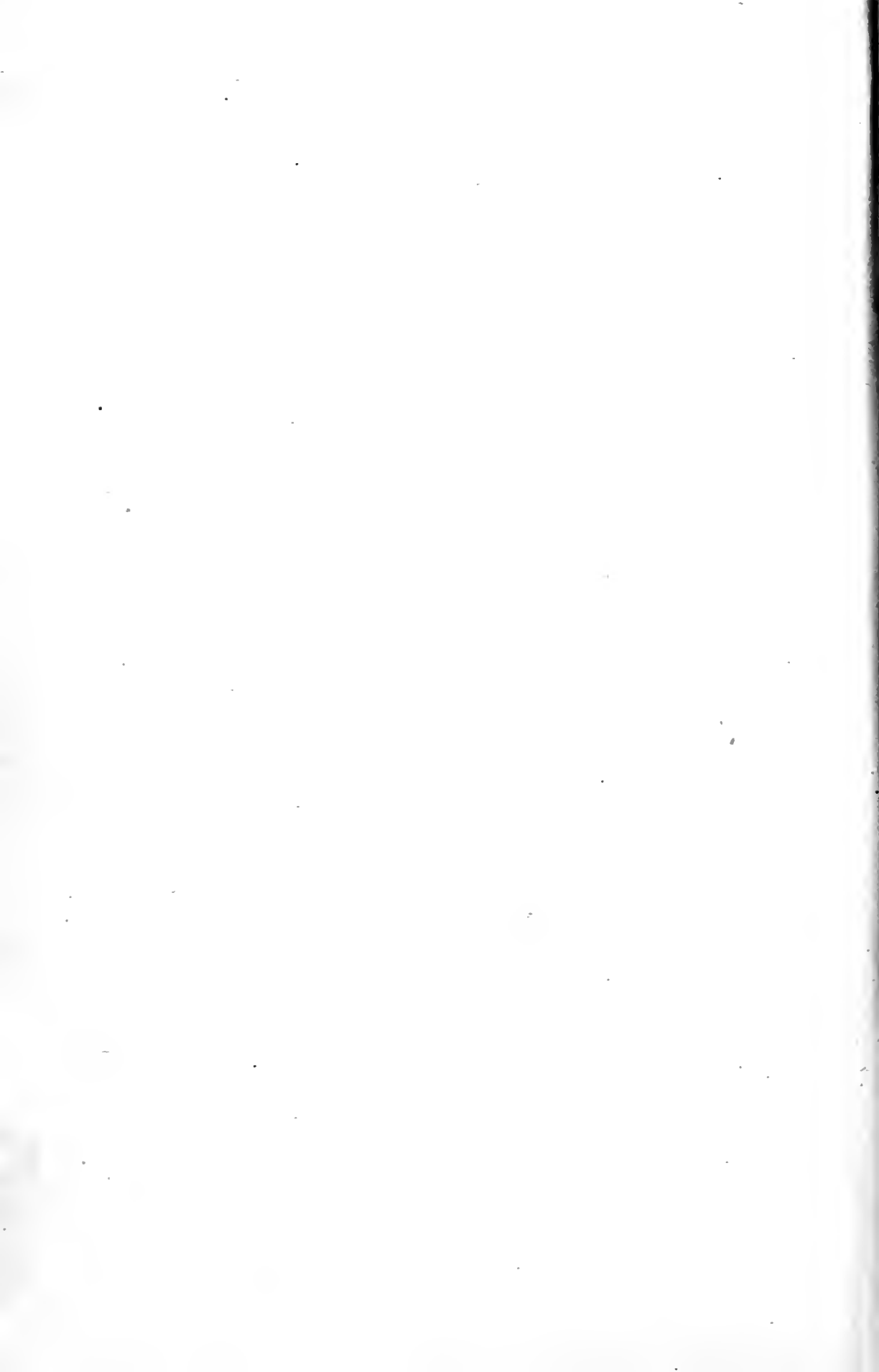
ALSO TO THOSE DWELLING IN EUROPE, MEXICO, SOUTH AMERICA,

THE EAST AND WEST INDIES, AND OTHER

FOREIGN LANDS,

I RESPECTFULLY DEDICATE

THIS WORK.



PREFACE.

Every family needs a COMMON SENSE MEDICAL ADVISER. The frequent inquiries from his numerous patients throughout the land, suggested to the Author the importance and popular demand for a reliable work of this kind. Consequently, he is induced to prepare and publish an extensive dissertation on Physiology, Hygiene, Temperaments, Diseases and Domestic Remedies. It is for the interest and welfare of *every* person, not only to understand the means for the preservation of health, but also to know what remedies should be employed for the alleviation of the common ailments of life.

The frequency of accidents of all kinds,—injuries sustained by machinery, contusions, drowning, poisoning, fainting, etc.,—and also of sudden attacks of painful diseases, such as headache, heart and nervous affections, inflammation of the eye, ear, and other organs, renders it necessary that the non-professional should possess sufficient knowledge to enable them to employ the proper means for speedy relief. To impart this important information is the aim of the Author.

Moreover, this volume treats of Human Temperaments,—not only of their influence upon mental characteristics and bodily susceptibilities, but also of their vital and non-vital combinations, which communicate to the offspring either health, hardihood, and longevity, or feebleness, disease, and death. It clearly points out those temperaments which are compatible with each other and harmoniously blend, and also those which, when united in marriage, result in barrenness, or produce in the offspring imbecility, deformity, and idiocy. These matters are freely discussed from original investigations and clinical observations, thus rendering the work a true and scientific guide to marriage.

While instruction is imparted for the care of the body, those diseases (alas how prevalent!) are investigated which are sure to follow as a consequence of certain abuses, usually committed through ignorance. That these ills do exist is evident from the fact that the Author is consulted by multitudes of unfortunate young men and women, who are desirous of procuring relief from the weaknesses and derangements incurred by having unwittingly violated physiological laws.

Although some of these subjects may seem out of place in a work designed for *every* member of the family, yet they are presented in a style which cannot offend the most fastidious, and with a studied avoidance of all language that can possibly displease the chaste, or disturb the delicate susceptibilities of persons of either sex.

This book should not be excluded from the young, for it is eminently adapted to their wants, and imparts information without which millions will suffer untold misery. It is a *false* modesty that debars the youth of our land from obtaining such information.

As its title indicates, the Author aims to make this book a useful and practical Medical Adviser. He proposes to express himself in plain and simple language, and, so far as possible, to avoid the employment of technical words, so that all his readers may readily comprehend the work, and profit by its perusal. Written as it is amid the many cares attendant upon a practice embracing the treatment of thousands of cases annually, and therefore containing the fruits of a rich and varied experience, some excuse exists for any literary imperfections which the critical reader may observe.

THE AUTHOR.

BUFFALO, N. Y., July, 1875.

INTRODUCTORY WORDS.

1. Health and disease are physical conditions upon which pleasure and pain, success and failure, depend. Every *individual* gain increases public gain. Upon the health of its people is based the prosperity of a nation; by it every value is increased, every joy enhanced. Life is incomplete without the enjoyment of healthy organs and faculties, for these give rise to the delightful sensations of existence. Health is essential to the accomplishment of every purpose; while sickness thwarts the best intentions and loftiest aims. We are continually deciding upon those conditions which either tide us with joy and happiness or occasion pain and disease. Prudence requires that we should meet the foes and obviate the dangers which threaten us, by turning all our philosophy, science, and art, into practical *common sense*.

2. The profession of medicine is no *sinecure*; its labors are constant, its toils unremitting, its cares unceasing. The physician is expected to meet the grim monster, "break the jaws of death, and pluck the 'spoil out of his teeth." His ear is ever attentive to entreaty, and within his faithful breast are concealed the disclosures of the suffering. Success may elate him, as conquest flushes the victor. Honors are lavished upon the brave soldiers who, in the struggle with the foe, have covered themselves with glory, and returned victorious from the field of battle; but how much more brilliant is the achievement of those who overwhelm disease, that common enemy of mankind, whose victims are numbered by millions! Is it meritorious in the physician to modestly veil his discoveries, regardless of their importance? If he have light why hide it from the world? Truth should be made as universal and health-giving as sunlight. We say, give light to all who are in darkness, and a remedy to the afflicted everywhere.

3. We, as a people, are becoming idle, living in luxury and ease, and in the gratification of artificial wants. Some indulge

in the use of food rendered unwholesome by bad cookery, and think more of gratifying a morbid appetite than of supplying the body with proper nourishment. Others devote unnecessary attention to the display of dress and a genteel figure, yielding themselves completely to the sway of fashion. Such intemperance in diet and dress manifests itself in the general appearance of the unfortunate transgressor, and exposes his folly to the world, with little less precision than certain vices signify their presence by a tobacco-tainted breath, beer-bloated body, rum-enblazoned nose, and kindred manifestations. They coddle themselves instead of practicing self-denial, and appear to think that the chief end of life is gratification, rather than useful endeavor.

4. I purpose to express myself candidly and earnestly on all topics relating to health, and appeal to the common sense of the reader for justification. Although it is my aim to simplify the work, and render it a practical common-sense guide to the farmer, mechanic, mariner, and day-laborer, yet I trust that it may not prove less acceptable to the scholar, in its discussion of the problems of Affinity, Life, and Mind. Not only does the method adopted in this volume of treating of the Functions of the Brain and Nervous System present many new suggestions, in its application to health-culture, management of disease, human temperaments, marriage, generation, and to the development and improvement of man, but the conclusions correspond with the results of the latest investigations of the world's most distinguished *savants*. My object is to inculcate the facts of science rather than the theories of philosophy.

5. Unto us are committed important health trusts, which we hold, not merely in our own behalf, but for the benefit of others. If we discharge the obligations of our trusteeship, we shall enjoy present strength, usefulness, and length of days; but if we fail in their performance, then inefficiency, incapacity, and sickness, will follow, the sequel of which are pain and death. Let us then prove worthy of this generous commission, that we may enjoy the sweetest of all pleasures,—the delicious fruitage of honest toil and faithful obedience.

PART I.

PHYSIOLOGY.

CHAPTER I.

BIOLOGY.

6. In this chapter we propose to consider Life in its earliest manifestations. There is little difference between the meanings of Biology and Physiology. Biology is the science of living bodies, or the science of life. Each organ of a living body has a function to perform, and Physiology treats of these functions.

7. *Function* means a living process. There can be no vital action without change, and no change without organs. Every living thing has a structure, and Anatomy treats of the structures of organized bodies. Several chapters of this work are devoted to Physiological Anatomy, which treats of the human organism and its functions.

8. The initiation of life is called *generation*; its continuance, *reproduction*. By the former function, individual life is insured; by the latter, it is maintained. Since nutrition sustains life, it has been pertinently termed *perpetual reproduction*.

9. **Latent Life**, as a primary element, lies concealed in a small globule—a mere atom of matter—in the sperm-cell. This element is something which, under certain conditions, will develop functions. The entire realm of nature teems with these interesting phenomena, thus disclosing that continual adjustment

of internal to external relations, which claims our profound attention. We are simply the humble acolytes waiting in the vestibule of nature's glorious sanctuary, to receive the interpretation of her divine mysteries.

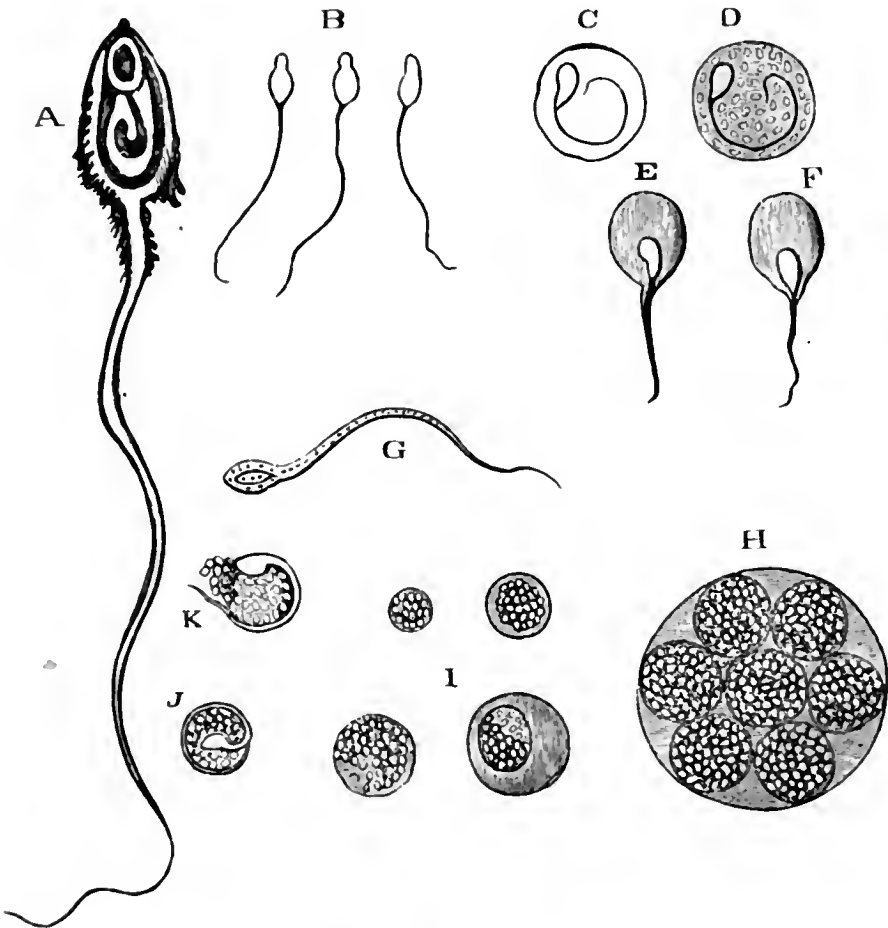
10. Some have conjectured that chemical and physical forces include all the phenomena of life, and that organization is not the resultant of vital forces. Physical science cannot inform us what must have been the beginning, or how the *vital* are the result of chemical forces; nor can it tell us what transmutation it will undergo at the end of organized existence. This mysterious life-principle eludes the grasp of the profoundest scientists, and its presence in the world will ever continue to be an astonishing and indubitable testimony of a Divine Power.

11. The physical act of generation is accomplished by the union of two cells; and as this conjugation is known to be so generally indispensable to the organization of life, we may fairly infer that it is a universal necessity. Investigations with the microscope have destroyed the hypothesis of "spontaneous generation." These show us that even the minutest living forms are derived from a parent organization.

12. **Life in a Latent Condition.**—So long as the vital principle remains in the sperm-cell, it is dormant. That part of the cell which organically represents this principle is called the *spermatozoön*, which consists of a flattened body, having a long appendage tapering to the finest point. If it be remembered that a line is the one-twelfth part of an inch in length, some idea may be formed of the extreme minuteness of the body of a human spermatozoön, when we state that it is from $\frac{1}{800}$ to $\frac{1}{600}$ of a line, and the filiform tail $\frac{1}{50}$ of a line, in length. This life-atom, which can be discerned only with a powerful magnifying glass, is perfectly transparent, and moves about by executing a vibratile motion with its long appendage. Within this speck of matter (almost inconceivably small) are hidden all the multifarious forces which result in organization. Magnify this infinitesimal atom a thousand times, and no congeries of formative powers is perceived wherewith to work out the wonders of its existence. Yet it contains the principle, which is the contribution on the part of the male toward the generation of a new being.

13. The ovum, or germ-cell, is the special contribution on the part of the female for the production of another being. The human ovum, though somewhat larger than the spermatozoön, is also extremely small, measuring not more than from $\frac{1}{250}$ to $\frac{1}{100}$ of a line, or from $\frac{1}{400}$ to $\frac{1}{200}$ of an inch, in diameter.

Fig. 1.



- A. Human Spermatozoön magnified 2,400 times.
- B. Spermatozoa of man viewed on the surface and edgewise.
- C, D, E, F. Development of spermatozoa within the vesicles of evolution.
- G. Cell of the sponge resembling a spermatozoön.
- H. Vesicles of evolution from the seminal fluid of the dog in the parent cell.
- I. Single vesicles of different sizes.
- J. Human spermatozoön forming in its cell.
- K. Rupture of the cell and escape of the spermatozoön.

14. The sperm and germ-cells contain the ultimate elements of all organic structures, and both possess the special qualities and conditions by which they may evolve organic beings. Every

cell is composed of minute grains, within which vital action takes place. The interior of a cell consists of growing matter; the exterior, of matter which has assumed its form and is less active. When the life-principle is communicated to it, the cell possesses the inherent power of changing itself. While this conversion takes place within the cell, deteriorating changes occur in the constructed parts. Although vital operations build up these structures, yet animal and nervous functions are continually disintegrating, or wasting, them.

15. Throughout the animal kingdom, germ-cells present the same material aspect when carefully examined with the microscope. No difference can be observed between the cells of the flowers of the oak and of the apple, but the cells of the one always produce oak-trees, while those of the other always produce apple-trees. The same is true of the germs of animals, there being not the slightest appreciable difference. We are unable to perceive why one cell should give rise to a spider, while another exactly like it gives rise to a bird. For aught we know, the ultimate atoms of these cells are identical in physical character; at least, we have no means of detecting any difference. What then prompts such dissimilar developments?

16. We abstract from the facts of development a type representing a power, according to which organization follows with regularity. Although germ-cells are identical in form, yet they manifest various powers. The spermatie particle of a duck, by micrometrical measurement as to length, breadth, and thickness, or by its external appearance, cannot be distinguished in any way from that of a reptile. These two particles possess different type powers, which unfold those qualities and conditions that distinguish the duck from the reptile. The formative principle is distinct in each, although the physical aspects are the same. This indicates that life in its latent condition is what it represents in after organization; that it contains within itself the being which it afterward evolves to the world. Development implies that there is in the thing to be developed power to unfold and expand; and each life-principle develops its own particular individuality with an exactness which is truly marvelous.

THE PROCESS OF GENERATION.

17. This living *principle*, represented in a *sperm-cell* by a spermatozoön, must be imparted to a *germ-cell*, and the manner in which it is communicated indicates its spiritual constitution. It is done instantaneously by the momentary contact of a sperm and a germ-cell. After the "touching," separate them immediately, and observe the result. If, with the aid of a powerful lens, we directly examine the spermatozoön, it will be perceived that, for a short time, it preserves its dimensions and retains all its material aspects. But it cannot long withstand the siege of decay, and, having fulfilled its destiny, it loses its organic characteristics, and eventually begins to shrink.

18. If we now examine the fertilized germ, and prolong the observation, we discover unusual activity, consequent to impregnation. Organic processes succeed each other with wonderful regularity, as though wrought out by inexplicable intelligence. Here begin the functions which constitute human physiology.

Observation.—Generation requires that a spermatozoön be brought into actual contact with a germ, in order that fecundation may follow. Now, if a spermatic cell, or spermatozoön, together with several unimpregnated ova (no matter how near to each other), be placed on the concave surface of a watch-crystal, and covered with another crystal, keeping them warm, and although the vapor of the ova envelopes them, yet no impregnation occurs. Place the spermatozoön in contact with an ovum, and impregnation is instantly and perfectly accomplished.

19. Can this vitalizing power be termed nerve-force, electricity, heat, or motion? It is known that these forces may be metamorphosed; for nervous force may be transmuted into electricity, electricity into heat, and heat into motion, thus illustrating their affiliation and transformation. But nothing is explained as to the ultimate nature of the vital principle, if we affirm its identity with either of these forces; for who has revealed the ultimate nature of any of these, or even of matter? This primitive unit of consciousness, which some call *sensibility*, is one of those ultimate facts which can only be studied from the conditions of its manifestations: without these considerations

we obtain no idea of it. Since it is the *animus* of the living organism, we speak of it as a vital force. Conceive it as separated from these organic processes, and we have a subtle abstraction which eludes all analysis. Yet it is a condition in the sperm-cell, anterior to all concrete expression in the germ-cell. It is an ideal conception, and it begins to be real when, with the first opportunity, it abandons the sperm-cell and unites with a germ-cell, where it finds favorable conditions and nourishing elements for its endless unfolding. The character of its development leads us to consider it as the representation of mind, as well as of vital energies. We can no more disclose the essence of thought than the psychologist can reveal that of the mind itself. The facts of science or the conclusions of philosophy have no bearing in determining the after conditions essential to spiritual sensibility. In our investigations, we are limited to material circumstances. The greatest mystery is the mystery of nature, manifested in that purest of emotions,—*Love*,—the love that displays Omnipotence.

20. Before any progress can be made in the solution of this problem, we find that organization itself must be subjected to its power, to furnish the facts. It is this essential that initiates the process of development, and, at the same time, eludes the subtleties of logicians and the cunning of thought. Yet it epitomizes man, antecedes him physically, and evolves those mental and moral powers which seem to be a necessary prelude to final spiritual transformation. We know of no evolvment whatever, without this indispensable factor, by which the physiology of existence may be initiated. It is because of its imponderable nature that we are led to call it a principle; and yet it is so specific in its conditions and requirements, so unswervingly individual, as to preserve a definite character in whatever relation it may be placed. This is illustrated by the latent life in a kernel of wheat, which, after lying dormant for thousands of years in the pyramids, when brought under the awakening influences of heat, moisture, and electricity, responds with animation, and robes itself in all the distinctive beauties of its pristine nature. The animal kingdom everywhere expresses the same genetic constancy. The contents of the tiny birdsnest, comprising the treasured wealth of a few dappled eggs, afford us an illustration of

this; for each egg perfectly represents a bird, not simply that of a particular family or species, but *the* bird, whose plumage, song, and disposition, distinguish it from all others. Faultlessly as a mirror reflects an image, so is this life-principle represented in the personality of each bird. By it the type is accurately reproduced in color, grace of outline, and in every part of the feathery organism; indeed, it modulates every thrilling note of joyous utterance.

21. There is, then, an occult spark of life, antecedent to each personality, whose realm is a germ-cell. This primary germ contains a multitude of minute cells, which continue to develop until their generative cycle is completed by the evolution of all the organs and functions of an individual body, which originates other similar life-principles, to perpetuate the regal line of species after its kind.

22. Without a union of elemental forces, how can this unique coalition of mind and body be effected? The properties of mind and matter are inseparably blended. Every process is double. Each function of the mind has its physical effect; every bodily act, a mental result. No thought escapes physical influences, for however exalted it may be, it must ever have an invisible continuity with brain matter and corporeal being. Formal thought, the highest of all the intellectual functions, implies not only a purely subjective factor—a conscious power which defies all analysis—but also an objective basis—a physical organization. The translation of purely mental phenomena into a system of atomical dynamics, reducing all the functions of the mind to a peculiar and ever varying molecular motion, is a task which the most sanguine materialist can never hope to effectuate. Their relativity is a problem which philosophers, in all ages, have failed to solve. Within it, must be contained the *equation of life* itself. We may traverse the gloomy vestibule of sentient existence, even penetrate the darkened aisles of inner being, but into the “holy of holies,” the sanctuary of Reason, we cannot enter, for its portals are guarded by the archangels of God. We can only know that the existence of the one is essential to the sacredness and maintenance of the other. That the one should defy all our efforts to comprehend it, in its relations to corporeal being, is a sequence of human limitation, and not a result of

absolute independence. It is this very relation, this balance of differences, which constitutes the primitive idea of an individuality. If the spiritual element be in the ascendant, in the same degree will the purely material be depressed, and *vice versa*.

Words, the product of intelligent thought, express a double meaning, implied by these relations. Thoughts may be cold, selfish, and frigid, or they may be warm, generous, and glowing; they may be characterized by dullness and stupidity, or be animating, quickening, and inspiring.

Melancholy is a synonym of a gloomy, depressed, and unhappy state of mind, borrowing all its significance from *Melan* (black) and *Cholos* (bile). Sweet or sour, soothing or irritating, may refer to mental as well as to bodily states. Spencer says: "We can think of matter only in terms of mind, and can think of mind only in terms of matter." We employ words which, if separately defined and considered, will apply with equal force to either. Intellection, emotion, and volition, are functions of nervous matter, whose activities may be disclosed in the excretions. Broken-down brain-cells, wasted in the production of thought, are found in the residuum of the urine.

23. Within the limits of a race, the genetic principle maintains a type. True, individuals of different races may temporarily unite, but the hybrid mixture is not permanent, and returns again to the original stock. There is no intermediate race. Hybrids depend altogether on the permanence of distinct types. This exceptional union of individuals of two races indicates their organic similarity, and illustrates the elasticity of the genetic force, in thus blending the peculiarities of each when it cannot perpetuate the hybrid issue. The tendency to return to the pattern types is well understood, and races, distinct by creation, perfectly preserve their organic characteristics. Observation proves that dainty humming-birds cannot beget wrens, nor bluebirds breed rapacious eagles; skunks cannot engender guinea-pigs, nor owls produce birds of paradise: and, finding nothing in the material aspect of sperm or germ-cells whereon to found and preserve these distinctions, we refer them to the existence of a genetic principle. If the conditions which favor development be lacking, it may abort, but it cannot degenerate, or be transformed into something higher.

ALTERNATE GENERATION.

24. In several insect families, the species are not wholly represented in the adult individuals of both sexes, or in their development, but, to complete this representation, supplementary individuals, as it were, of one or of several preceding generations, are required. The son may not resemble the father, but the grandfather, and in some instances the likeness re-appears only in later generations. Agassiz states: "Alternate generation was first observed among Salpæ. These are marine mollusks, without shells, belonging to the family Tunicata. They are distinguished by the curious peculiarity of being united together in considerable numbers so as to form long chains, which float in the sea, the mouth (*m*) however being free in each.

Fig. 2.

Fig. 3.



"Fig. 2. The individuals thus joined in floating colonies produce eggs; but in each animal there is generally but one egg formed, which is developed in the body of the parent, and from which is hatched a little mollusk.

"Fig. 3, which remains solitary, and differs in many respects from the parent. This little animal, on the other hand, does not produce eggs, but propagates by a kind of budding, which gives rise to chains already seen in the body of their parent (*a*), and these again bring forth solitary individuals, etc."

It therefore follows that generation in some animals requires two different bodies with intermediate ones, by means of which, and their different modes of reproduction, a return to the original stock is effected.

VARIATIONS AND PERSONAL DISSIMILARITIES.

25. Life implies simultaneous as well as successive changes. Two living bodies can never produce identical intermediates. Offspring may resemble the parents, but there can be no stable

transition between them, because the genetic equilibrium is constantly varying. There is no stand-still of life, but a constant permutation. The temperaments furnish incident forces, which are always unequal and variable. Differences between children of the same parentage are evidences of it. For these reasons, there is no such thing as identity between two living beings, whatever may be their similarity. In the vast reach of organic influences which connect with either parent, there has previously existed an infinite series of differential forces, and every moment they continue to fluctuate. The conditions of generation are modified by changes in the life of every individual parent, whose body is the depository of hereditary influences, which may crop out in successive or alternate generations. The eminent abilities of some remote ancestor reappear in a boy, whose immediate parentage was unpromising, and, under great difficulties, he works his way from obscurity to worthy distinction, thus vindicating his patrician inheritance.

26. **Universality of Animalcular Life.**—The genetic elements are universally diffused. The gentle zephyr wafts from flower to flower, invisible, fructifying atoms, which quicken beauty and fragrance, giving the promise of a golden fruitage, to gladden and nourish a dependent world. Nature's own sweet cunning invests all living things, constraining into her service chemical affinities, arranging the elements and disposing of them for her own benefit, in such numberless ways, that we involuntarily exclaim,

“The course of Nature is the art of God.”

The microscope reveals the fact that matter which measures only $\frac{1}{25000}$ of a line in diameter is endowed with vitality, and countless numbers of animalcules inhabit a single drop of water. These monads do not vary in form, whether in motion or at rest. The life of one, even, is an inexplicable mystery to the philosopher. The sphere of vitality expands before our eyes. Erenberg writes: “Not only in the polar regions is there an uninterrupted development of active microscopic life, where larger animals cannot exist, but we find that those minute beings collected in the Antarctic expedition of Captain James Ross exhibit a remarkable abundance of unknown, and often most beautiful forms.”

Even the interior of animal bodies is inhabited by animalcules. They have been found in the blood of the frog and the salmon, and in the optic fluids of fishes. Organic beings are found in the interior of the earth, into which the industry of the miner has made extensive excavations, sunk deep shafts, and thus revealed their forms; likewise, the smallest fossil organisms form, in humid districts, subterranean strata many fathoms deep. Not only do lakes and inland seas abound with life, but also, from unknown depths, in volcanic districts, arise thermal springs which contain living insects,—real animalcular salamanders. Were we endowed with a microscopic eye, we might see myriads of ethereal voyagers wafted by on every breeze, as we now behold drifting clouds of aqueous vapor. While the continents of earth furnish evidences of the universality of organic beings, recent observations prove that “animal life predominates amid the eternal night of the depths of the liquid ocean.”

ORIGIN OF LIFE.

27. The ancients, crude in many of their ideas, referred the origin of life to divine determination. The thought was rudely expressed, but well represented, in the following verse:

“Then God smites his hands together,
And strikes out a soul as a spark,
Into the organized glory of things,
From the deeps of the dark.”

According to a Greek myth, Prometheus formed a human image from the dust of the ground, and then, by fire stolen from heaven, animated it with a living soul. Spontaneous generation once held its sway, and now the idea of a natural evolution is popular. Some believe that the impenetrable mystery—life—is evolved from the endowments of nature, and build their imperfect theory on observations of her concrete forms and their manifestations, to which all our investigations are restricted. But every function indicates purpose, every organism evinces intelligent design, and *all* proclaim a Divine Power. Something cannot come out of nothing. With reason and philosophy, *chance* is an impossibility. We therefore accept the displays of wisdom in nature as indicative of the designs of God. Thus “has He written His

claims for our profoundest admiration and homage all over every object that He has made." If you ask, Is there any advantage in considering the phenomena of nature as the result of DIVINE VOLITION? we answer, that this belief corresponds with the universally acknowledged ideas of accountability; for, with a wise and efficient Cause, we infer there is an intelligent creation, and the desire to communicate, guide, and bless, is responded to by man, who loves, obeys, and enjoys. Nothing is gained by attributing to nature vicegerent forces. Is it not preferable to say that she responds to intelligent, loving Omnipotence? Our finiteness is illustrated by our initiation into organized being. Emerging from a rayless atom, too diminutive for the sight, we gradually develop and advance to the maturity of those *conscious powers*, the exercise of which furnishes indubitable evidence of our immortality. We are pervaded with invisible influences, which, like the needle of the compass trembling on its pivot, point us to immortality as our ultimate goal, where, in the sunny clime of Love, even in a spiritual realm of joy and happiness, we may eternally reign with Him who is all in all.

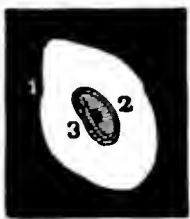
CHAPTER II.

PHYSIOLOGICAL ANATOMY.

THE BONES.

28. All living bodies are made up of tissues. There is no part, no organ, however soft and yielding, or hard and resisting, which has not this peculiarity of structure. Tissues belong to the *bones* of animals, as well as to their flesh and fat, and all alike originate from cells. Each cell discloses a triple organization, viz: a *nucleolus*, or dark spot, in the center of the cell, around which circles a mass of granules, called the *nucleus*; and this, in turn, is surrounded with a delicate, transparent membrane, termed the *envelope*. Each of the granules composing the nucleus appropriates nourishment, thereby growing into an independent cell, which possesses a triple organization similar to that of its parent, and in like manner reproduces other cells.

Fig. 4.

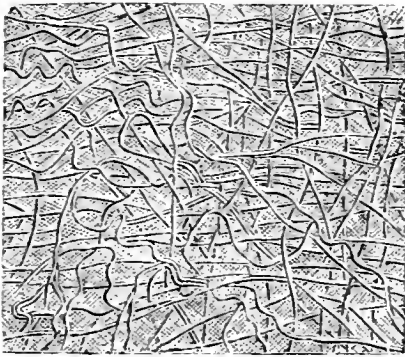


Nucleated cell.
From Goerber. 1.
Periphery of the
cell, or cell-wall.
2. Nucleus. 3.
Nucleolus in the
center.

A variety of tissues enters into the composition of an animal structure, yet their differences are not always distinctly marked, since the characteristics of some are not unlike those of others. We shall notice, however, only the most important of the tissues.

The *Areolar Tissue* is a complete network of delicate fibers, spread over the body, and its innumerable interstices are filled with a fluid. The fibrous and serous tissues are only modifications of the areolar.

Fig. 5.



Arrangement of fibers in Areolar Tissue. Magnified 135 diameters.

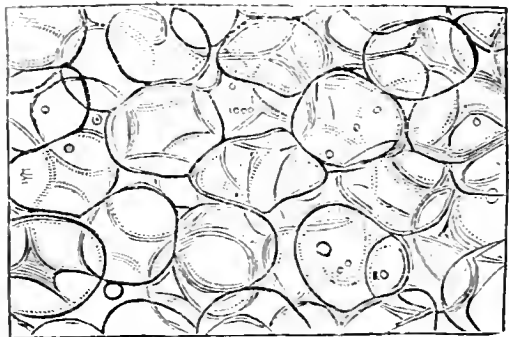
The *Cartilaginous Tissue* consists of nucleated cells, and, with the exception of bone, is the hardest part of the animal frame. The *Ossseous* (bone) *Tissue* is more compact and solid than the cartilaginous, for it contains a greater proportion of lime.

The *Muscular Tissue* is composed of bundles of fibers, which are inclosed in a cellular membrane.

29. Various opinions have been entertained in regard to the formation, or growth, of bone. Some have supposed that all bone is formed in cartilage. But this is not true; for there is an *intra-membranous*, as well as an *intra-cartilaginous*, formation of bone, as seen in the development of the cranial bones, where the progressive calcification takes place upon the inner layers of the fibrous coverings. Intra-cartilaginous deposit is found in the vicinity of the blood-vessels, within the cartilaginous canals; also, there are certain incipient points, first observed in the centers of long bones, called *points of ossification*. These points are no sooner formed than the cartilage-corpuscles arrange themselves in a linear series, and, lying in contact with each other, become very compact. As ossification proceeds, the cup-shaped cavities are converted into closed interstices of bone with extremely thin lamellæ. These, however, soon thicken, and no closed vessels can be

The *Nervous Tissue* is of two kinds, viz: the gray-colored, which is pulpy and granulated, and the white fibrous tissue. The *Adipose Tissue* is a membrane of extreme tenuity, and composed of closed cells which contain fat. It is found directly beneath the skin, giving it a smooth, plump appearance.

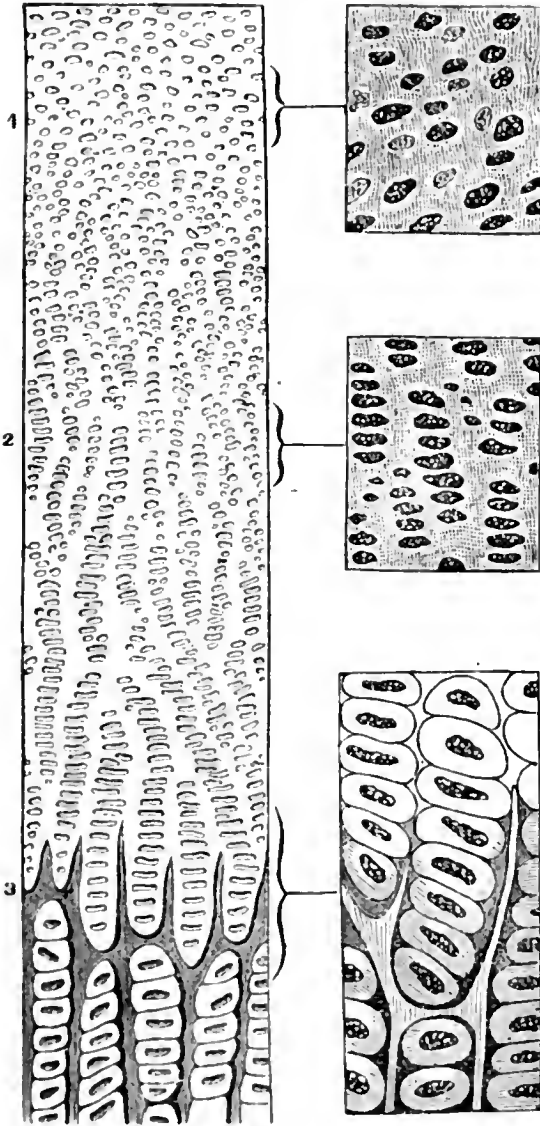
Fig. 6.



Human Adipose Tissue

traced within them. The bony plates define the boundaries of the *Haversian* canals. In the *second stage of ossification*,

Fig. 7.



Vertical section of cartilage near the surface of ossification. 1. Ordinary appearance of the temporary cartilage. 1'. Portion of the same more highly magnified. 2. The cells beginning to assume the linear direction. 2'. Portion more magnified. 3. The ossification is extending in the intercellular spaces, and the rows of cells are seen resting in the cavities so formed, the nuclei being more separated than above. 3'. Portion of the same more highly magnified.

the cartilage-corpuscles are converted into bone. Becoming flattened against the osseous lamellæ already formed, they so crowd upon each other as to entirely obliterate the lines that distinguish them; and, simultaneously with these changes, a calcareous

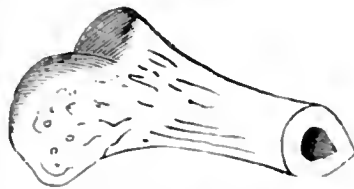
Fig. 8.



Thigh-bone, sawn open lengthwise.

deposit takes place upon their interior. Bones grow in a longitudinal direction. Their extremities are separated from the body of the bone

Fig. 9.



Lower end of the thigh-bone, sawn across, showing its central cavity.

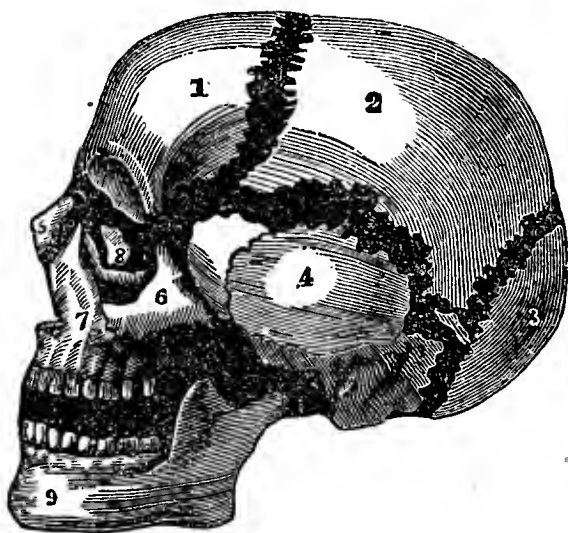
by a lamina of cartilage, and the cancellated structure, which remains for a

time in the interior, represents the early condition of the ossifying substances.

30. The bones contain more earthy matter in their composition than any other part of the human body, being firm, hard, and of a lime color. They compose the skeleton, or frame-work, and when united by natural ligaments form what is known as the *natural* skeleton; when wired together, they are called an *artificial* skeleton. The number of bones in the human body is variously estimated; for those regarded as single by some anatomists, are supposed by others to consist of several pieces. There are about two hundred and eight bones in the human body, besides the teeth. These are divided into those of the Head, Trunk, Upper Extremities, and Lower Extremities.

31. **The Bones of the Head** are enumerated as

Fig. 10.



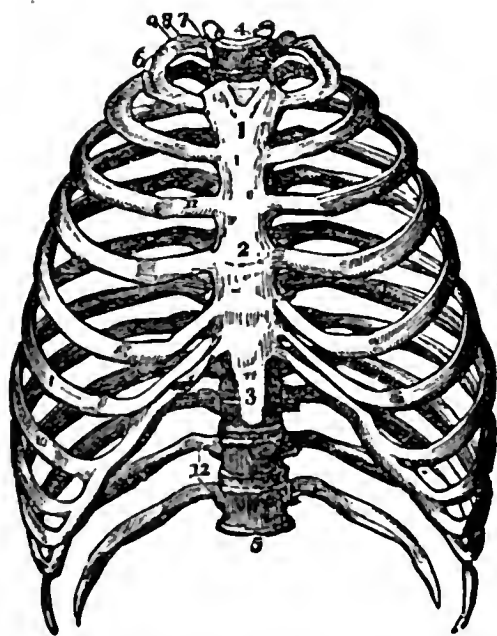
The bones of the skull separated. 1. Frontal, only half is seen. 2. Parietal (wall). 3. Occipital (back), only half is seen. 4. Temporal. 5. Nasal (nose). 6. Malar (cheek). 7. Superior maxillary (upper jaw). 8. Unguis (nail form, being about the size and thickness of the finger nail). 9. Inferior maxillary (lower jaw). Between 4 and 6 a part of the sphenoid, or wedge-shaped bone, is seen. Another bone assisting to form the skull, but not here seen, is called the *ethmoid* (sieve-like, from being full of holes), and is situated between the sockets of the eyes, forming the roof of the nose. 2, 4, 5, 6, 7, 8, are double. The small bone, and others like it, seen in a line between 3 and 4, are called *ossa triquetra*.

follows: six belonging to the Cranium, fourteen to the Face, two common to both Head and Face, and four to the Ear. The *Cranium* (skull) is formed of two bony plates, between which is placed a spongy bone. The external plate is fibrous; the internal, compact and vitreous. The skull is nearly oval in form, convex externally, much thicker at the base than elsewhere, and is in every respect admirably adapted to resist any injury to which it may be exposed, thus affording an ample protection to the brain substance which it envelops. The internal surface of the cranium

presents little pathways, more or less irregular in their course, which are the grooves for blood-vessels. The bones of the cranium are united to each other, and to those of the face, by ragged edges, called *sutures*, which are quite distinct in the adult, but in old age are nearly effaced. Some suppose that by this arrangement the cranium is less liable to be fractured by blows; others think that the sutures allow the growth of these bones, which takes place by osseous enlargement at the margins. The bones of the *Face* are joined at the lower part and in front of the cranium, and serve for the attachment of powerful muscles, which assist in the process of mastication. Although the soft parts of the face cover the bony structure, yet they do not conceal its principal features, or materially change its proportions. The form of the head and face presents some remarkable dissimilarities in different races. The bones of the *Ear* retain in a normal position the several parts required for hearing.

32. **The Trunk** has fifty-four bones, viz: the *Os Hy-*

Fig. 11.



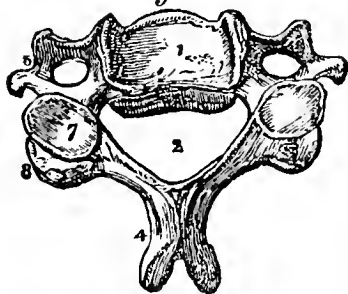
1. The first bone of the sternum (breast-bone). 2. The second bone of the sternum. 3. The cartilage of the sternum. 4. The first dorsal vertebra (a bone of the spinal column). 5. The last dorsal vertebra. 6. The first rib. 7. Its head. 8. Its neck. 9. Its tubercle. 10. The seventh or last true rib. 11. The cartilage of the third rib. 12. The floating ribs.

oides, the *Sternum*, twenty-four *Ribs*, twenty-four of the *Spinal Column*, and four of the *Pelvis*. The *Os Hyoides*, situated at the base of the tongue, is the most isolated bone of the skeleton, and serves for the attachment of muscles. The *Sternum* (breast-bone), in a child, is composed of eight pieces, in the adult of three, and in old age they are consolidated into one bone. The *Ribs* are thin, curved bones, being convex externally. There are twelve on each side, and all are attached to the spinal column. The seven upper ribs, which are united in front to the sternum, are termed *true ribs*; the next three, which are not attached

to the sternum, but to each other, are called *false ribs*; and the last two, which are joined only to the vertebræ, are designated as *floating ribs*. The first rib is the shortest, and they increase in length as far as the eighth, after which the order is reversed.

The *Spinal Column* (back-bone), when viewed

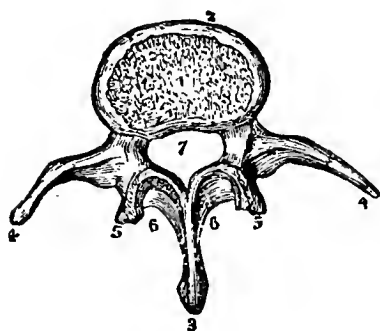
Fig. 12.



A vertebra of the neck. 1. The body of the vertebra. 2. The spinal canal. 4. The spinous process, cleft at its extremity. 5. The transverse process. 7. The inferior articular process. 8. The superior articular process.

processes, four of which are the *articular processes*, and furnish surfaces to join the different

Fig. 13.



1. The cartilaginous substance which connects the bodies of the vertebræ. 2. The body of the vertebra. 3. The spinous process. 4, 4. The transverse processes. 5, 5. The articular processes. 6, 6. A portion of the bony bridge which assists in forming the spinal canal (7).

vertebræ is a highly-elastic, cartilaginous, and

from the front, presents a perpendicular appearance, but a side view shows four distinct natural curvatures. The bones composing it are called *vertebræ*. The body part of a vertebra is light and spongy in texture, having seven

projections, called *processes*, four of which are the *articular processes*, and furnish surfaces to join the different vertebræ of the spinal column. Two are called *transverse*, and the other is termed the *spinous*. The transverse and spinous processes serve for the attachment of the muscles belonging to the back. All these processes are more compact than the body of the vertebra, and, when naturally

connected, are so arranged as to form a tube which contains the *medulla spinalis* (spinal cord). Between the

Fig. 14.

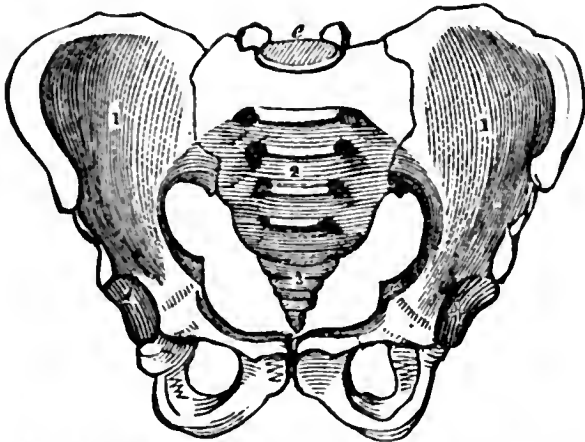


Back-bone, spinal column, or vertebral column. All animals possessing such a row of bones are called *vertebrates*. Above *b* are the cervical (neck) vertebræ; *b* to *c*, dorsal (back) or chest vertebræ; *c* to *d*, lumbar (loins) vertebræ; *d* to *e*, sacrum; *e* to *f*, coccyx.

cushion-like substance, which freely admits of motion, and allows the spine to bend as occasion requires. The natural curvatures of the spinal column diminish the shock produced by falling, running, or leaping, which would otherwise be more directly communicated to the brain. The ribs at the sides, the sternum in front, and the twelve dorsal bones of the spinal column behind, bound the thoracic cavity, which contains the lungs, heart, and large blood-vessels.

The *Pelvis* is an open bony structure, consisting of the *Os Innominatum* at either side, and the *Sacrum* and *Coccyx* behind.

Fig. 15.



A representation of the pelvic bones. *e.* The sacro-lumbar joint. *2.* The sacrum. *3.* Coccyx. *1, 1.* The innominate. *4, 4.* Acetabulum, or hip-joint.

The *Sacrum*, during childhood, consists of five bones; and these, in later years, unite to form one bone. It is light and spongy in texture, and the upper surface articulates with the lowest vertebra; while it is united by its inferior margin to the coccyx. The

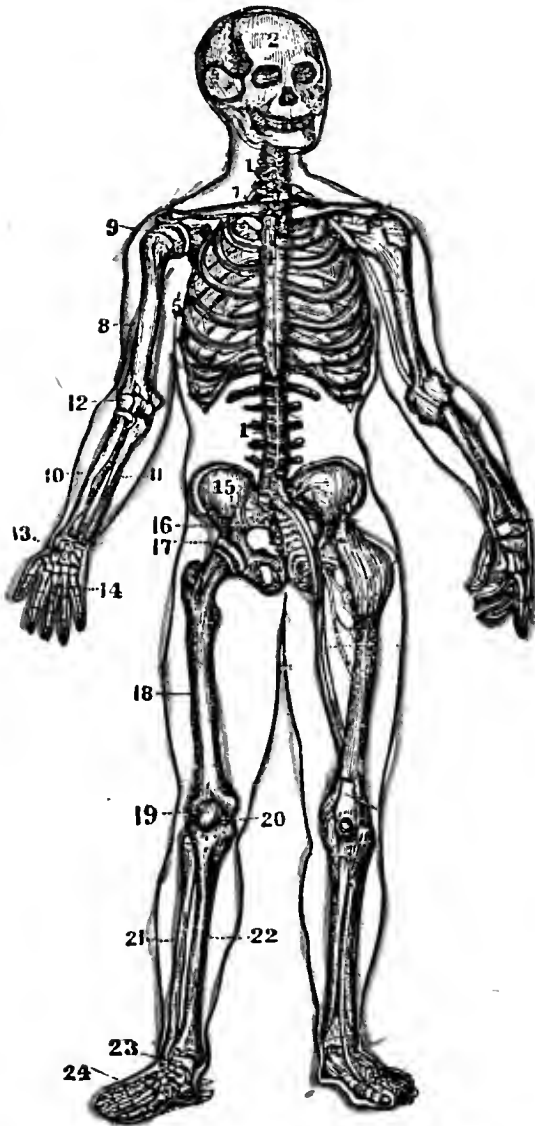
Coccyx is the terminal bone of the spinal column. In infancy it is

cartilaginous and composed of several pieces, but in the adult these unite and form one bone. The *Innominate* (nameless bones), during youth, consist of three symmetrical pieces on each side; but as age advances they coalesce and form one bone. A deep socket, called the *acetabulum*, is found near their junction, and serves for the reception of the head of the thigh-bone.

33. The Bones of the Upper Extremities are sixty-four in number, and are arranged under the following divisions, viz: The Scapula, Clavicle, Humerus, Ulna, Radius, Carpus, Metacarpus, and Phalanges. The *Scapula* (shoulder-blade) is an irregular, thin, triangular-shaped bone, situated at the posterior part of the shoulder, and attached to the upper and back part of the chest. The *Clavicle*

(collar-bone) is located at the upper part of the chest, between the sternum and scapula, and connects with both. Its form

Fig. 16.



1, 1. Portions of the back-bone. 2. Cranial bones. 4. Breast-bone. 5. Ribs. 7. Collar-bone. 8. Arm-bone (humerus). 9. Shoulder-joint. 10, 11. Bones of the fore-arm (ulna and radius). 12. Elbow-joint. 13. Wrist-joint. 14. Bones of the hand. 15, 16. Pelvic bones. 17. Hip-joint. 18. Femur. 19, 20. Bones of the knee-joint. 21, 22. Fibula and tibia. 23. Ankle-bone. 24. Bones of the foot.

resembles that of the italic letter *f*, and it prevents the arms from sliding forward and the person from becoming round-shouldered. The *Humerus* (first bone of the arm) is long, cylindrically-shaped, and situated between the scapula and fore-arm. The *Ulna* (bone of the fore-arm) is nearly parallel to the radius, and situated on the inner side of the fore-arm. It is the longer and larger of the two bones, and in its articulation with the humerus, forms a perfect hinge-joint. The *Radius* (so called from its resemblance of a spoke) is on the outside of the fore-arm, and articulates with the bones of the wrist, forming a joint. The ulna and radius also articulate with each other at their extremities. The *Carpus* (wrist) consists of eight bones, arranged in two rows. The *Metacarpus* (palm of the hand) is com-

posed of five bones, situated between the carpus and fingers. The *Phalanges* (fingers and thumbs) comprise fourteen bones, the fingers having three series, while the thumb has but two.

34. The Bones of the Lower Extremities

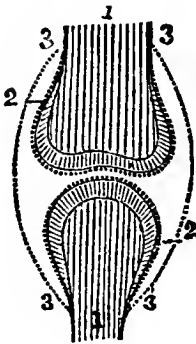
(of which there are sixty) may be classed as follows: The *Femur*, *Patella*, *Tibia*, *Fibula*, *Tarsus*, *Metatarsus*, and *Phalanges*. The *Femur* (thigh-bone) is the longest bone in the body. It has a large circular head, which is received into the acetabulum (see page 27), thus affording a good illustration of the ball-and-socket joint. The *Patella* (knee-pan) is the most complicated articulation of the body. It is of a round form, connects with the tibia by means of a strong ligament, and serves as a pulley when the limb is extended. The *Tibia* (shin-bone) is enlarged at each extremity to articulate with the femur above and the astragalus (upper bone of the tarsus) below. The *Fibula* (small bone of the leg) is situated at the outside of the tibia, and firmly bound to it at each extremity. The *Tarsus* (instep) is composed of seven bones, and corresponds to the carpus of the upper extremities. The *Metatarsus* (middle of the foot) bears a close resemblance to the metacarpus, and consists of five bones situated between the tarsus and the phalanges. The tarsal and the metatarsal bones are so united as to give an arched appearance to the foot, thus imparting elasticity. The *Phalanges* (toes) consist of fourteen bones, arranged in a manner similar to that of the fingers.

35. We are no less interested in tracing the formation of bone through its several stages, than in considering other parts of the human system. The formation of Haversian canals for the passage of blood-vessels to nourish the bones, the earlier construction of bony tissue by a metamorphosis of cartilaginous substance, and also the commencement of ossification at distinct points, called *centers of ossification*, are all important subjects, requiring the student's careful attention. The bones are protected by an external membranous envelope, which, from the nature of its function, is called the *periosteum*. The bones are divided into long and round, short and thick, broad and flat, being thus adapted to subserve a variety of purposes. The long bones are required for locomotion; where a covering for the delicate organs is necessary, the flat bones are provided, as the skull, etc.; where strength and motion are both essential, as in the vertebræ, short bones are furnished.

36. The construction and arrangement of the bones are highly

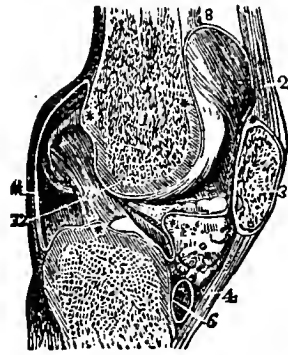
curious. The formation of joints requires not only bones, but cartilages, ligaments, and the synovial membrane, to complete the articulation. *Cartilage* is a smooth, elastic substance, softer than bone, and invested with a thin membrane, called *perichondrium*. When cartilage is placed upon convex surfaces, it is thickest at the center; when upon concave surfaces, the reverse is true. The *Ligaments* are white, inelastic, tendinous substances, softer than cartilage, but harder than membrane. Their function is to bind together the bones. The *Synovial Membrane* covers the cartilages, and is then reflected upon the ligaments, thus forming a thin, closed sac, called the *synovial capsule*.

Fig. 17.



Anatomy of a joint. 1, 1. Bones of a joint. 2, 2. Covered by cartilage. 3, 3, 3. Synovial membrane.

Fig. 18.



Anatomy of the knee-joint. 1. Lower end of thigh-bone. 3. Knee-pan. 2, 4. Ligaments of the knee-pan. 5. Upper end of the tibia, or shin-bone. 6, 12. Cartilages.

All synovial membranes secrete a lubricating fluid, termed *synovia*, which enables the surfaces of the bones and ligaments to move freely upon each other. When this fluid is secreted in excessive quantities, it produces a disease known as "dropsy of the joints." There are numerous smaller sacs besides the synovial, called *bursæ mucosæ*, which in structure are analogous to them, and secrete a similar fluid. Some joints permit motion in every direction, as the shoulders, some in two directions only, as the elbows, while others do not admit of any movement. The bones, ligaments, cartilages, and synovial membrane, are supplied with nerves, arteries, and veins.

37. When an animal is provided with an internal bony

structure, it indicates a high rank in the scale of organization. An elaborate texture of bone is found in no class below the vertebrates. Even in the lower order of this sub-kingdom (which in the highest of animals) bone does not exist; as is true in some tribes of fishes, such as sharks, etc.: and in all classes below that of the cartilaginous fishes, the inflexible substance which sustains the soft parts is either shell or some modification of bone, and is usually found on the outside of the body. True bone, on the contrary, is found in the interior, and therefore, in higher animals, the skeleton is always internal, while the soft parts are placed externally to the bony frame. While many animals of the lowest species, being composed of soft gelatinous matter, are buoyant in water, the highest type of animals require not only a bony skeleton, but also a flexible, muscular system, for locomotion in the water or upon the land. Each species of the animal kingdom is thus organically adapted to its condition and sphere of life.

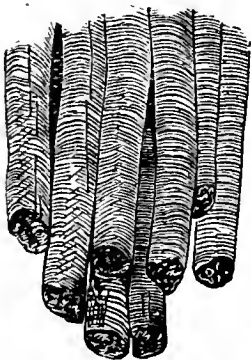
CHAPTER III.

PHYSIOLOGICAL ANATOMY.

THE MUSCLES.

38. The *Muscles* are those organs of the body by which motion is produced, and are commonly known as *flesh*. A muscle is composed of *fasciculi* (bundles of fibers), parallel to each other. They are soft, variable in size, of a reddish color, and inclosed in a cellular, membranous sheath. Each *fasciculus* contains a number of small fibers, which, when subjected to a microscopic examination, are found to consist of *fibrillæ* (little fibers), each, in turn, being invested with a delicate sheath.

Fig. 19.



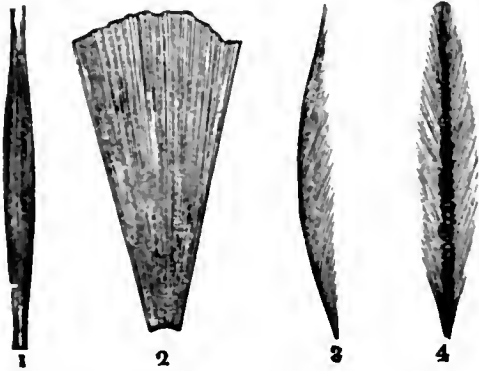
Muscular fibers highly magnified.

The fibers terminate in a glistening, white *tendon* (hard cord), which is attached to the bone. So firmly are they united, that the bone will break before the tendon can be released. When the tendon is spread out, so as to resemble a membrane, it is called *fascia*. Being of various extent and thickness, it is distributed over the body, as a covering and protection for the more delicate parts, and aids also in motion, by firmly uniting the muscular fibers. The spaces between the muscles are filled with fat, which gives roundness and beauty to the limbs. The muscles are vari-

able in form; some are longitudinal, each extremity terminating in a tendon, which gives them a fusiform or spindle-shaped appearance; others are either fan-shaped, flattened, or cylindrical.

39. Every muscle has an origin and an insertion. The origin is the fixed and central point; the insertion is the movable point, and furthest from the center.

Fig. 20.



1. A representation of a spindle-shaped muscle, with tendinous terminations. 2. Fan-shaped muscle. 3. Penniform muscle. 4. Bipenniform muscle.

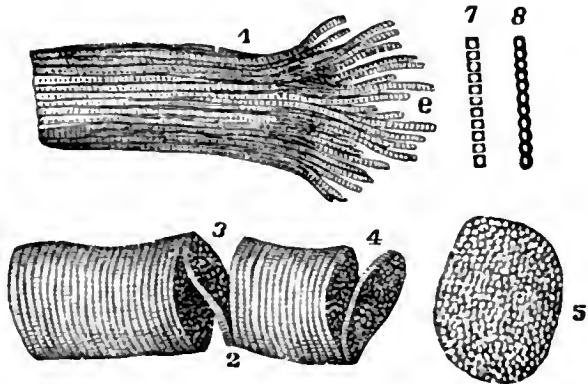
The muscles are divided into the Voluntary, or muscles of animal life, and the Involuntary, or muscles of organic life. There are, however, some muscles which cannot properly be classified with either, and may be termed Intermediate. The *Voluntary Muscles* are chiefly controlled by the will, relaxing and contracting at its pleasure, as in the motion of the eyes, ears, limbs, etc. The fibers are of

a dark red color, and possess great strength. These fibers are parallel, seldom interlacing, but presenting a striped or striated appearance; and a microscopic examination of them shows that the most minute consist

of parallel filaments marked by longitudinal and transverse *striæ* (minute channels). The fibers are of nearly the same length as the muscles to which they belong. Each muscular fiber is capable of contraction; it may act singly, though usually it acts in unison with others. By a close inspection, it has been found that fibers may

be drawn apart longitudinally, in which case they are termed *fibrillæ*, or they may be separated transversely, forming a series of discs. The *Sarcolemma*, or investing sheath of the muscles,

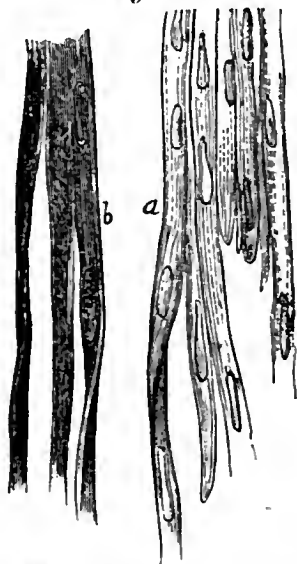
Fig. 21.



Striped muscular fibers, showing cleavage in opposite directions. 1. Longitudinal cleavage. 2. Transverse cleavage. 3. Transverse section of disc. 4. Disc nearly detached. 5. Detached disc showing the sarcolemma. 6. Fibrillæ. 7, 8. Separated fibrillæ (highly magnified).

appears to have been formed even before there were any visible traces of the muscle itself. It is a transparent and delicate membrane, but very elastic. The *Involuntary Muscles* are influenced by the sympathetic system, and their action pertains to the nutritive functions of the body. They differ from the volun-

Fig. 22.



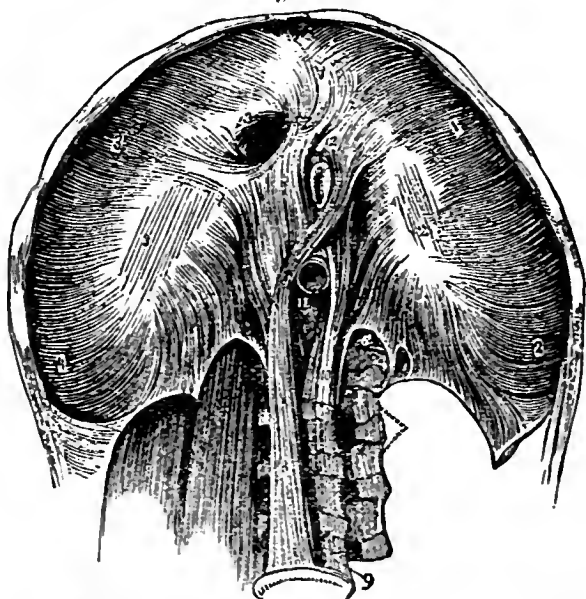
Non-striated muscular fiber; at b, in its natural state; at a, showing the nuclei after the action of acetic acid.

The muscles receive their nourishment from the numerous blood-vessels which penetrate their tissues. The voluntary muscles are abundantly supplied with nerves, while the involuntary are not so numerously furnished. The color of the muscles is chiefly due to the

tary muscles, by being non-striated, having no tendons, and by the net-work arrangement of their fibers. The *Intermediate Muscles* are composed of striated and non-striated fibers; they are therefore both voluntary and involuntary in their functions. The muscles employed in respiration are of this class, for we can breathe rapidly or slowly, and, for a short time, even suspend their action; but soon, however, the organic muscles assert their instinctive control, and respiration is resumed.

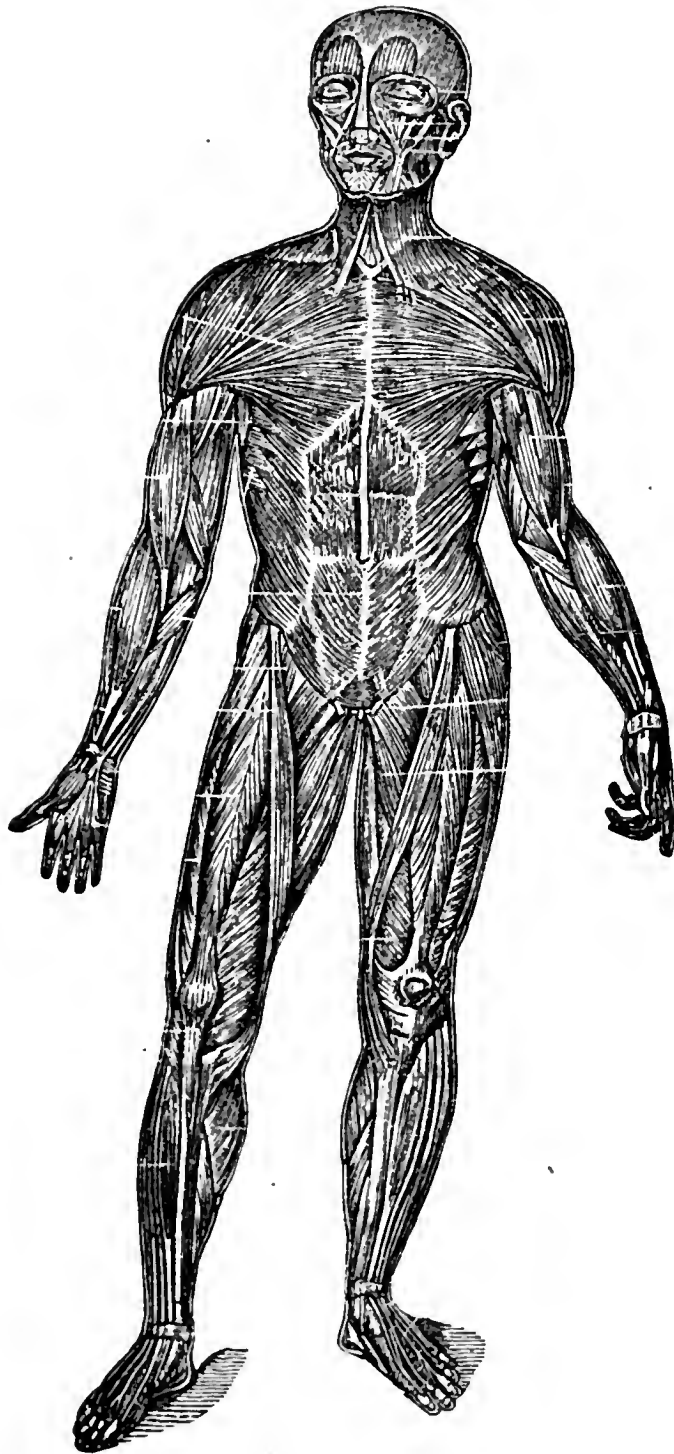
40. **The Diaphragm** (midriff) is the muscular division between the thorax and the abdomen. It has been compared to an inverted basin, the concavity of which is directed toward the abdomen.

Fig. 23.



A view of the under side of the diaphragm, which is the muscular division between the thorax and abdomen.

Fig. 24.

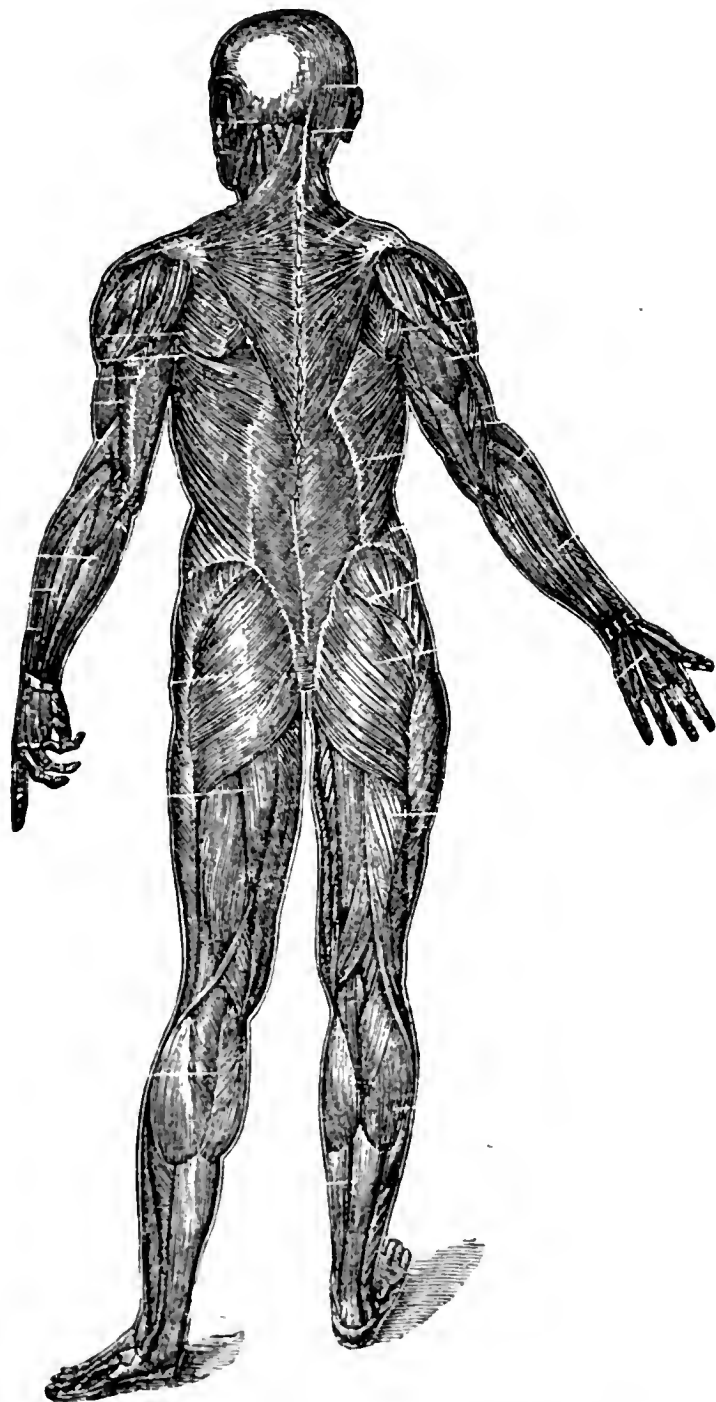


A representation of the superficial layer of muscles on the anterior portion of the body.

blood which they contain. They vary in size according to their respective functions. For example, the functions of the heart require large and powerful muscles; while those of the eye, small and delicate ones. There are from four hundred and sixty to five hundred muscles in the human body.

41. Very rarely is motion produced by the action of a single muscle, but by the harmonious action of several. There is an infinite variety in the arrangement of the muscles, each varying according to its requirements—whether it be strength, tenacity, or rapidity. While some involuntarily respond to the wants of organic life, others obey, with mechanical nicety, the edicts of the will. The peculiar characteristic of the muscles is their contractility: for example, when the tip of the finger is placed in the ear, an incessant vibration, due to the contraction of the muscles of the ear, can be heard. When the muscles contract, they become shorter; but what is lost in length is gained in breadth and thickness, so that their actual volume remains the same. Muscles alternately contract and relax, and thus act upon the bones. The economy of muscular power thus displayed is truly remarkable. In easy and graceful walking, the forward motion of the limbs is not altogether due to the exercise of muscular power, but partly to the force of gravity, and only a slight assistance of the muscles is required to elevate the leg sufficiently to allow it to oscillate.

42. Motion is a characteristic of living bodies. This is true, not only with regard to animals, but also with plants. The oyster, although not possessing the power of locomotion, opens and closes its shell at pleasure. The coral insect appears at the door of its cell, and then retreats, at will. All the varied motions of animals are due to that distinguishing property of the muscles, viz., *contractility*. Although plants are influenced by external agents, as light, heat, electricity, etc., yet it cannot be denied that they move in response to inward impulses. The sensitive stamens of the barberry, when touched at their base on the inner side, intuitively resent the intrusion, by making a sudden jerk forward. Venus's-flytrap, a plant found in North Carolina, is remarkable for the sensitiveness of its leaves, which close suddenly and capture insects which chance to alight upon them. The muscles of the articulates are situated within the

Fig. 25.

A representation of the superficial layer of muscles on the posterior portion of the body.

solid frame-work, unlike the vertebrates, whose muscles are external to the bony skeleton. All animals have the power of motion, from the lowest radiate to the highest vertebrate, from the most repulsive polyp to that type of organized life made in the very image of God.

43. The muscles, then, subserve an endless variety of purposes. By their aid the farmer employs his implements of husbandry, the mechanic deftly wields his tools, the artist plies his brush, while the fervid orator gives utterance to thoughts glowing with heavenly emotions. It is by their agency that the sublimest spiritual conceptions can be brought to the sphere of the senses, and the noblest, loftiest aims of to-day can be made the glorious realizations of the future.

CHAPTER IV.

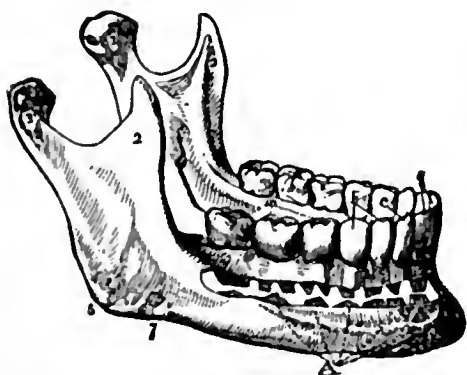
PHYSIOLOGICAL ANATOMY.

THE DIGESTIVE ORGANS.

44. *Digestion* signifies the act of separating or distributing; hence its application to the process by which food is made available for nutritive purposes. The organs of digestion are the Mouth, Teeth, Tongue, Salivary Glands, Pharynx, Esophagus, Stomach, Intestines, Lacteals, Thoracic Duct, Liver, Spleen, and Pancreas.

45. The *Mouth* is an irregular cavity situated between the upper and the lower jaw, and contains the organs of mastication. It is bounded by the lips in front, the cheeks at the sides, the roof of the mouth and teeth of the upper jaw above, and behind and beneath by the teeth of the lower jaw, soft parts, and palate.

Fig. 26.



A view of the lower jaw. 1. The body. 2, 2. Rami, or branches. 3, 3. Processes of the lower jaw. m. Molar teeth. b. Bicuspids. c. Cuspids. i. Incisors.

The soft palate is a sort of pendulum attached only at one of its extremities, while the other involuntarily opens and closes the passage from the mouth to the pharynx. The interior of the mouth, as well as other portions of the alimentary canal, is lined with a delicate tissue, called *mucous membrane*.

46. The *Teeth* are firmly inserted in the alveoli (sockets of the upper and the lower jaw). The first set (twenty in number)

are temporary, and appear during infancy. They are replaced by permanent teeth, of which there are sixteen in each jaw, viz: four incisors (front teeth), four cuspids (eye teeth), four bicuspids (grinders), and four molars (large grinders). Each tooth is divided into the crown, body, and root. The crown is the grinding surface; the body,—the part projecting from the jaw,—is the seat of sensation and nutrition; the root is that portion of the tooth which is inserted in the alveolus. The teeth are composed of dentine (ivory) and enamel. The ivory forms the greater portion of the body and root, while the enamel covers the exposed surface. The small white cords communicating with the teeth are the *nerves*.

47. The *Tongue* is a flattened, oval organ, the base of which is attached to the os hyoides, while the apex (the most sensitive part of the body) is free. Its surface is covered with a membrane, which, at the sides and lower part, is continuous with the lining of the mouth. On the lower surface of the tongue, this membrane is thin and smooth, but on the upper side it is covered with numerous papillæ, which, in structure, are similar to the sensitive papillæ of the skin.

48. The *Salivary Glands* are six in number, three on each side of the mouth: their function is to secrete a fluid called *saliva*, which aids in mastication. The largest of these glands—the *Parotid*—is situated in front and below the ear: its structure, like that of all the salivary glands, is cellular. The *Submaxillary* gland is circular in form, and situated midway between the angle

Fig. 27.



The salivary glands. The largest one near the ear is the parotid gland. The next below it is the submaxillary gland. The one under the tongue is the sublingual gland.

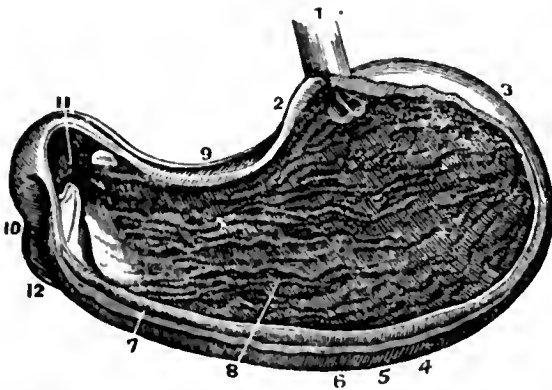
of the lower jaw and the middle of the chin. The *Sublingual* is a long flattened gland, and, as its name indicates, is located below the tongue, which, when elevated, discloses the saliva issuing from its porous openings.

49. The *Pharynx* is nearly four inches in length, formed of muscular and membranous cells, and situated between the base of the cranium and the esophagus, in front of the spinal column. It is narrow at the upper part, distended in the middle, but contracting again at its junction with the esophagus. The pharynx communicates with the nose, mouth, larynx, and stomach.

50. The *Esophagus*, a cylindrical organ, is a continuation of the pharynx, and extends through the diaphragm to the stomach. It has three coats: first, the muscular, consisting of an exterior layer of fibers running longitudinally, and an interior layer of transverse fibers; second, the cellular, which is interposed between the muscular and the mucous coat; third, the mucous membrane, or internal coat, which is continuous with the mucous lining of the pharynx.

51. The *Stomach* is a musculo-membranous, conoidal sac, communicating with the esophagus by means of the cardiac orifice

Fig. 28.



A representation of the interior of the stomach.
1. The esophagus. 2. Cardiac orifice opening into the stomach. 3. The pyloric orifice. 4. The duodenum. 5. The pyloric canal. 6. The middle or muscular coat. 7. The interior or mucous coat. 8. The beginning of the duodenum. 9. The pyloric orifice. 10. The beginning of the duodenum. 11. The pyloric orifice.

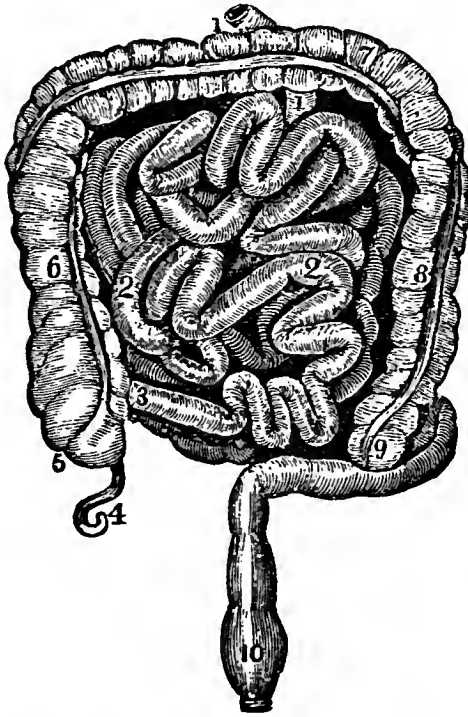
(see Fig. 28). It is situated obliquely with reference to the body, its base lying at the left side, while the apex is directed toward the right side. The stomach is between the liver and spleen, subjacent to the diaphragm, and communicates with the intestinal canal by the pyloric orifice. It has three coats. The peritoneal, or external coat is composed of compact, cel-

lular tissue, woven into a thin, serous membrane, and assists in keeping the stomach in place. The middle coat is formed of three layers of muscular fibers: in the first, the fibers run longitudinally; in the second, in a circular direction; while in the

third, they are placed obliquely to the others. The interior, or mucous coat lines this organ. The stomach has a soft, spongy appearance, and when not distended is in folds. During life it is, ordinarily, of a pinkish color. It is provided with numerous small glands, which secrete the gastric fluid necessary for the digestion of food. The lining membrane, when divested of mucus, has a wrinkled appearance. The arteries, veins, and lymphatics, of the stomach are numerous.

52. The *Intestines* are those convoluted portions of the alimentary canal into which the food is received after being partially

Fig. 29



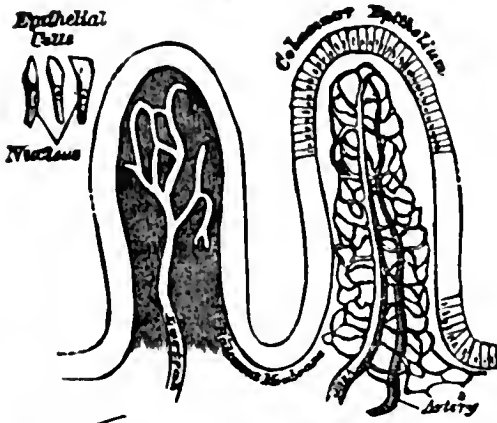
Small and large intestines. 1, 1, 2, 2. Small intestine. 3. Its termination in the large intestine. 4. Appendicula vermiciformis. 5. Cæcum. 6. Ascending colon. 7. Transverse colon. 8. Descending colon. 9. Sigmoid flexure of colon. 10. Rectum.

digested, and in which the separation and absorption of the nutritive materials and the removal of the residue take place. The coats of the intestines are analogous to those of the stomach, and are, in fact, only extensions of them. For convenience of description, the intestines may be divided into the *small* and the *large*. The small intestine is from twenty to twenty-five feet in length, and consists of the Duodenum, Jejunum, and Ileum. The *Duodenum* (so called because its length is equal to the breadth of twelve fingers) is the first division of the small intestine.

If the mucous membrane of the duodenum be examined, numerous *villi* will be found upon its internal surface. Each *villus* consists of a net-work of blood-vessels, and a lacteal tube, into which the ducts from the liver and pancreas open, and pour their secretions to assist in the conversion of the chyme into chyle. The *Jejunum* (so named because usually found empty after death) is a continuation of the duodenum, and is that portion of the alimentary canal where

the absorption of nutritive matter is chiefly effected. The *Ileum* (signifying to roll up) is the longest division of the small intestine.

Fig. 30.



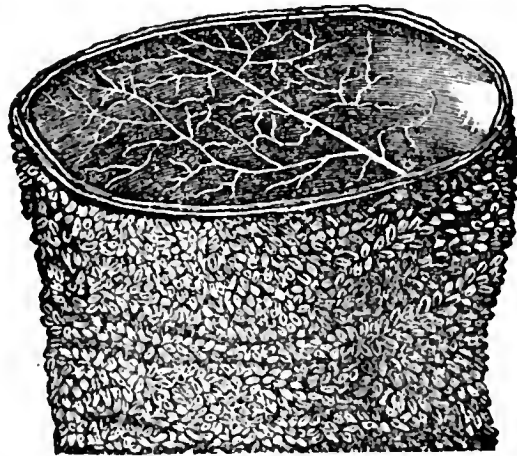
Villi of the small intestine largely magnified.

Although somewhat thinner in texture than the jejunum, yet the difference is scarcely perceptible. The large intestine is about five feet in length, and is divided into the Cæcum, Colon, and Rectum. The *Cæcum* is about three inches in length. Between the large and the small intestine is a valve, which prevents the return of excrementitious matter that has passed into the large intestine.

There is attached to the cæcum an appendage about the size of a goose-quill, and three inches in length, termed *appendicula vermiformis*. The *Colon* is that part of the large intestine which extends from the cæcum to the rectum, and is divided into three parts, distinguished as ascending, transverse, and descending. The *Rectum* is the terminus of the large intestine. The intestines are abundantly supplied with blood-vessels. The arteries of the small intestine are from fifteen to twenty in number. The large intestine is furnished with three arteries, called *colic arteries*. The *ileo-colic artery* sends

branches to the lower part of the ileum, head of the colon, and the *appendicula vermiformis*. The *right colic artery* forms arches, from which branches are distributed to the ascending colon. The *colica media* separates into two branches, one of

Fig. 31.

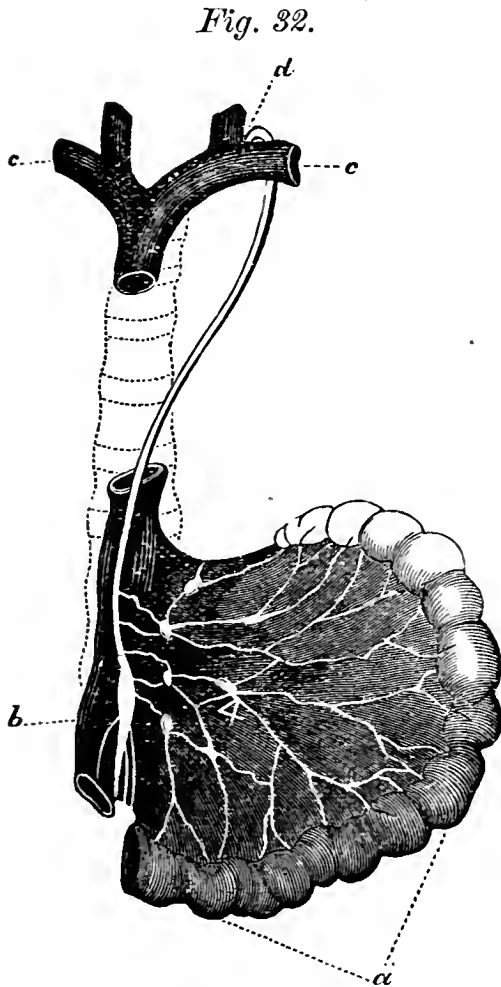


A section of the Ileum, inverted so as to show the appearance and arrangement of the villi on an extended surface.

which is sent to the right portion of the transverse colon, the other to the left. In its course, the *superior hemorrhoidal artery* divides into two branches, which enter the intestine from behind, and embrace it on all sides almost to the anus.

53. The *Thoracic Duct* is the principal trunk of the absorbent system, and the canal through which much of the chyle and lymph is conveyed to the blood.

It begins by a convergence and union of the lymphatics on the lumbar vertebræ, in front of the spinal column, then passes upward through the diaphragm to the lower part of the neck, thence curves forward and downward, opening into the subclavian vein near its junction with the left jugular vein, which leads to the heart.



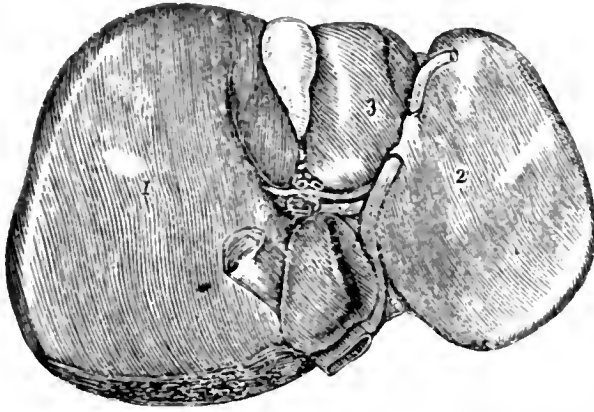
c, c. Right and left subclavian veins. b. Inferior vena cava. a. Intestines. d. Entrance of the thoracic duct into the left subclavian vein. l. Mesenteric glands through which the lacteals pass to the thoracic duct.

54. The *Liver*, which is the largest gland in the body, weighs about four pounds in the adult, and is located on the right side, immediately below the diaphragm. It is a single organ, of a dark red color, its upper surface being convex, while the lower is concave. It has two large lobes, the right being nearly four times as large as the left. The liver has two coatings, viz: the *serous*—which is a complete investment, with

the exception of the diaphragmatic border, and the depression for the gall-bladder—helps to suspend and retain it in position; and the *fibrous*, which is the inner coat of the liver, and forms sheaths for the blood-vessels and excretory ducts. The liver is

abundantly supplied with arteries, veins, nerves, and lymphatics. Unlike the other glands of the human body, it receives two kinds

Fig. 33.



The inferior surface of the liver. 1. Right lobe. 2. Left lobe. 3. Gall-bladder.

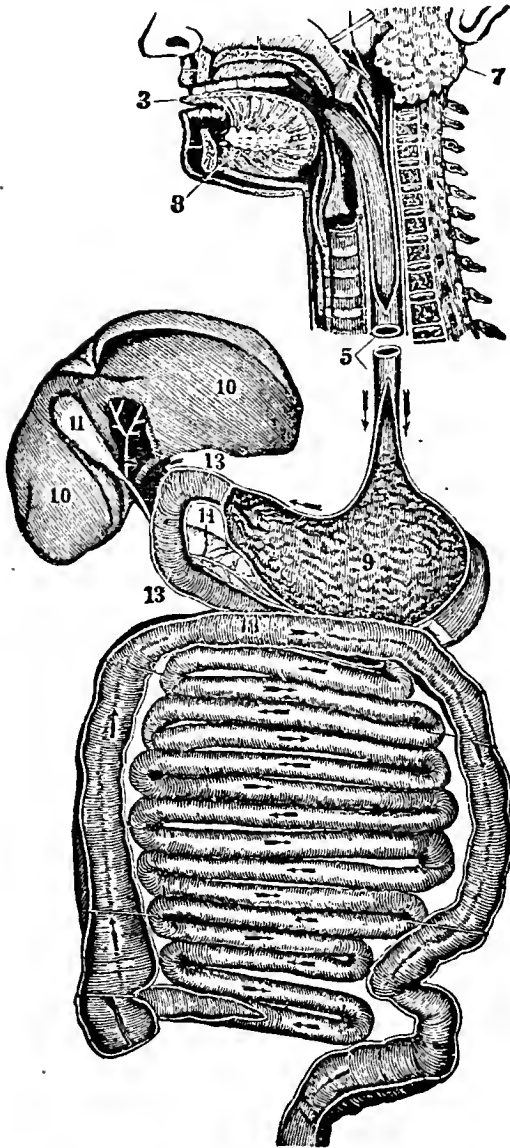
of blood; the arterial for its nourishment, and the venous, from which it secretes the bile. In the lower surface of the liver is lodged the gall-bladder, a membranous sac; or reservoir, for the bile. This fluid is not absolutely necessary to the digestion of food, since this process is effected by other se-

cretions, nor does bile exert any special action upon starchy or oleaginous substances, when mixed with them at a temperature of 100° F. Experiments also show that in some animals there is a constant flow of bile, even when no food has been taken, and consequently no digestion to be performed. Since the bile is formed from the venous blood, and taken from the waste and disintegration of animal tissue, it would appear that it is simply an excrementitious fluid; but it does not seem to have accomplished its function when discharged from the liver and poured into the intestine, for there it undergoes various alterations previous to re-absorption, and these changes seem to be of a catalytic (decomposing and recomposing) nature, produced by its contact with the intestinal juices. Thus the bile, after being transformed in the intestines, re-enters the blood under a new form, and is carried to some other part of the system to perform its mission.

55. The *Spleen* is oval, smooth, convex on its external, and irregularly concave on its internal, surface. It is situated on the left side, in contact with the diaphragm and stomach. It is of a dark red color, slightly tinged with blue at its edges. Some physiologists affirm that no organ receives a greater quantity of blood, according to its size, than the spleen. The structure of the spleen and that of the mesenteric glands are

similar, although the former is provided with a scanty supply of lymphatic vessels, and the chyle does not pass through it, as through the mesenteric glands. The *Pancreas* lies behind the

Fig. 34.



Digestive organs. 3. The tongue. 7. Parotid gland. 8. Sublingual gland. 5. Esophagus. 9. Stomach. 10. Liver. 11. Gall-bladder. 14. Pancreas. 13, 13. The duodenum. The small and large intestines are represented below the stomach.

stomach, and extends transversely across the spinal column to the right of the spleen. It is of a pale, pinkish color, and its secretion is analogous to that of the salivary glands; hence it has been called the *Abdominal Salivary Gland*.

56. Digestion is effected in those cavities which we have described as parts of the alimentary canal. The food is first received into the mouth where it is masticated by the teeth, and after being mixed with mucus and saliva, is reduced to a mere pulp; it is then collected by the tongue, which, aided by the voluntary muscles of the throat, carries the food backward into the pharynx, and, by the action of the involuntary muscles of the pharynx and esophagus, is conveyed to the stomach. Here the food is subjected to a peculiar, churning movement, by the alternate

relaxation and contraction of the fibers which compose the muscular wall of the stomach. As soon as the food comes in contact

with the stomach, its pinkish color changes to a bright red; and from the numerous tubes upon its inner surface is discharged a colorless fluid, called the *gastric juice*, which mingles with the food and dissolves it. When the food is reduced to a liquid condition it accumulates in the pyloric portion of the stomach. Some distinguished physiologists believe that the food is kept in a gentle, unceasing, but peculiar motion, called *peristaltic*, since the stomach contracts in successive circles. In the stomach the food is arranged in a methodical manner. The undigested portion is detained in the upper, or cardiac extremity, near the entrance of the esophagus, by contraction of the circular fibers of the muscular coat. Here it is gradually dissolved, and then carried into the pyloric portion of the stomach. From this, then, it appears, that the dissolved and undissolved portions of food occupy different parts of the stomach. After the food has been dissolved by this gastric acid, it is converted into a homogeneous, semi-fluid mass, called *chyme*. This substance passes from the stomach through the pyloric orifice into the duodenum, in which, by mixing with the bile and pancreatic fluid, its chemical properties are again modified. By experiment, the chyme has been found to be composed of three distinct parts, viz: a reddish brown sediment at the bottom, a whey-colored fluid in the middle, and at the top a creamy film. The creamy and whey-colored fluids are the constituents of chyle, and the sediment is excrementitious. The chyle and excrementitious substances are transmitted along the interior of the small intestine, in which the chyle is absorbed by the *villi* into the lacteal tubes. These *villi* occupy the surface of the small intestine, and absorb the creamy and nutritious portions of food, while the excrement passes onward to the lower portion of the intestines, thence to be expelled from the system. The lacteals, filled with chyle, pass into the mesenteric glands with which they freely unite, and afterward enter the *receptaculum chyli*, which is the commencement of the thoracic duct. Here also terminate the lymphatics, the function of which is to secrete and elaborate lymph. From this reservoir the chyle and lymph flow into the thoracic duct, by which they are conveyed to the left subclavian vein, there to be mingled with venous blood. The blood, chyle, and lymph, are then transmitted directly to the lungs. A living

body is constantly and necessarily subject to these changes. The process of nutrition aids in the development and growth of the body; hence it has been aptly designated a "perpetual reproduction." It is the process by which every part of the body assimilates portions of the blood distributed to it. In return, the tissues yield a portion of the material which was once a component of their organization. The body is constantly undergoing waste as well as repair. One of the most interesting facts in regard to the process of nutrition in animals and plants is, that all tissues originate in cells. In the higher types of animals, the blood is the source from which the cells derive their constituents. Although the alimentary canal is more or less complicated in different classes of animals, yet there is no species, however low in the scale of organization, which does not possess it in some form.* The little polyp has only one digestive cavity, which is a pouch in the interior of the body. In some animals circulation is not distinct from digestion, in others respiration and digestion are performed by the same organs; but as we rise in the scale of animal life, digestion and circulation are accomplished in separate cavities, and the functions of nutrition become more complex and distinct.

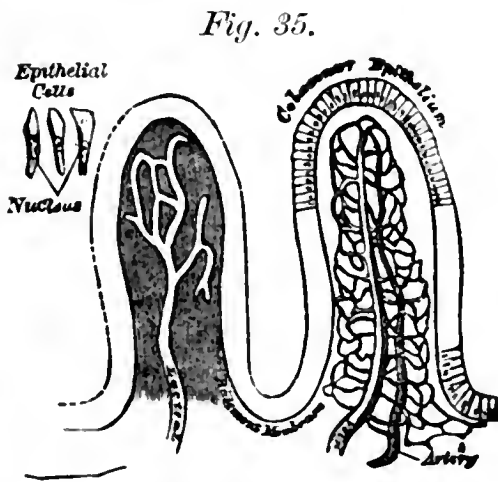
* The males of *Cryptophialus* and *Alcippe*, species of marine animals, are apparent exceptions to this rule. They are parasitic, possess neither mouth, stomach, thorax, nor abdomen, and are, necessarily, short-lived.

CHAPTER V.

PHYSIOLOGICAL ANATOMY.

ABSORPTION.

57. *Absorption* is the vital function by which nutritive materials are selected and imbibed for the sustenance of the body. Absorption, like all other functional processes, employs agents to effect its purposes, and the *villi* of the small intestine, with their numberless projecting organs, are specially employed to imbibe fluid substances: this they do with a celerity commensurate to the importance and extent of their duties. They are little vascular prominences of the mucous membrane, arising from the interior surface of the small intestine. Each villus has two sets of vessels, viz: (1.) The blood-vessels, which, by their frequent blending, form a complete net-work just beneath the external epithelium; they unite at the base of the villus, forming a minute vein, which is one of the sources of the portal vein. (2.) In the center of the villus is another vessel, with thinner and more transparent walls, which is the commencement of a lacteal.



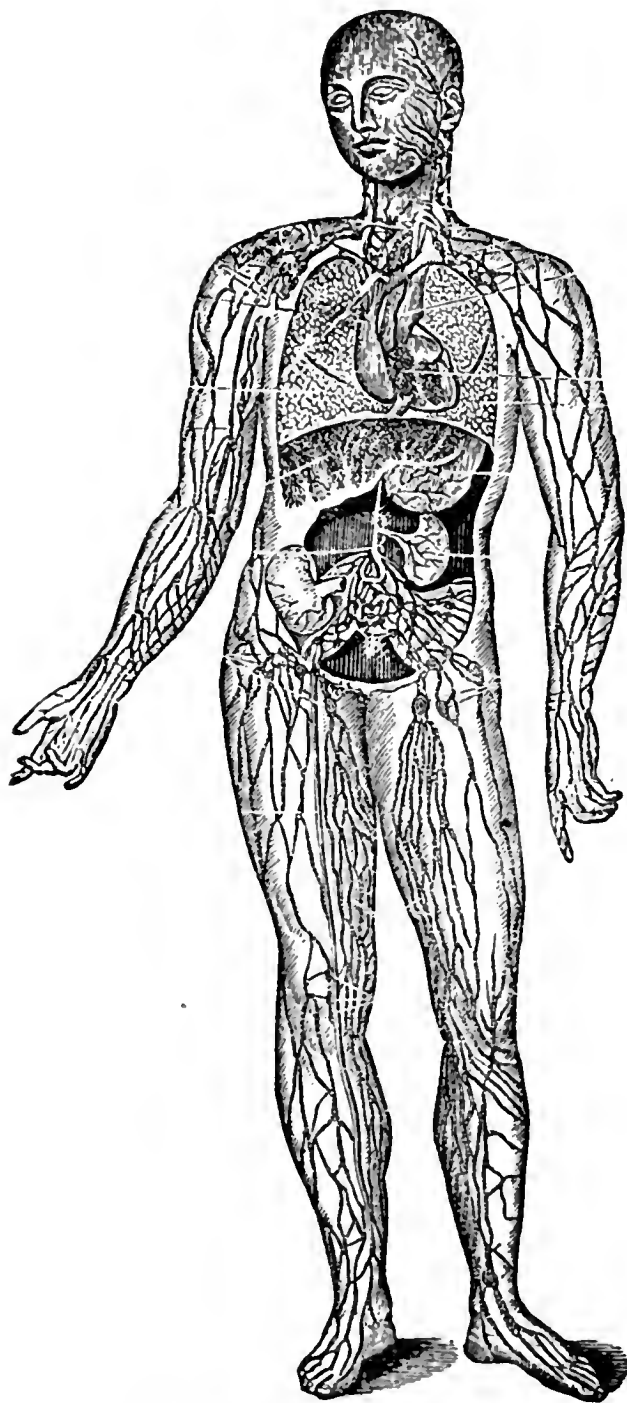
Villi of the small Intestine largely magnified.

58. The *Lacteals* originate in the walls of the alimentary canal, are very numerous in the small intestine, and, passing between the laminae of the mesentery, they terminate in the *receptaculum chyli*. The mesentery consists of a double layer of cellular and adipose tissue. It incloses the blood-vessels, lacteals, and nerves, of the small intestine, together with its accessory glands. It is joined to the posterior abdominal wall by a narrow origin; anteriorly, it is attached to the whole length of the small intestine. The lacteals are known as the absorbents of the intestinal walls, and after digestion is accomplished, are found to contain a white, milky fluid, called *chyle*. The chyle does not represent the entire product of digestion, but only the fatty substances suspended in a serous fluid.

59. Formerly, it was supposed that the lacteals were the only agents employed in absorption, but more recent investigations have shown that the blood-vessels participate equally in the process, and are frequently the more active and important of the two. Experiments upon living animals have proved that absorption of poisonous substances occurs, even when all communication by way of the lacteals and lymphatics is obstructed, the passage by the blood-vessels alone remaining. The absorbent power which the blood-vessels of the alimentary canal possess, is not limited to alimentary substances, but, through them, soluble matters of almost every description are received into the circulation.

60. The *Lymphatics* are not less important organs in the process of absorption. Nearly every part of the body is permeated by a second series of capillaries, closely interlaced with the blood-vessels, and collectively termed the *Lymphatic System*. Their origin is not known, but they appear to form a *plexus* in the tissues, from which their converging trunks arise. They are composed of minute tubes of delicate membrane, and from their net-work arrangement they successively unite and finally terminate in two main trunks, called the *great lymphatic veins*. The lymphatics, instead of commencing on the intestinal walls, as do the lacteals, are distributed through most of the vascular tissues as well as the skin. The lymphatic circulation is not unlike that of the blood; its circulatory apparatus is, however, more delicate, and its functions are not so well understood. The

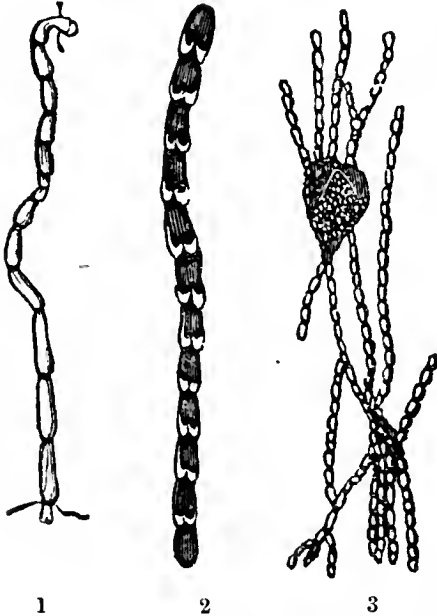
Fig. 36.



A general view of the Lymphatic System.

lymph which circulates through the lymphatics, as the blood through the veins, is a colorless fluid, and similar in character to

Fig. 37.



1. A representation of a lymphatic vessel highly magnified.
2. Lymphatic valves.
3. A lymphatic gland and its vessels.

the serum. Its ingredients, which are derived from the material waste arising from the transformation of the tissues, are taken to the lymphatic glands, in which they are revived and then returned to the general circulation, where they are assimilated. The function of the lymphatics is, then, to absorb worn-out materials, re-elaborate and prepare them for further use.

61. In all animals which possess a lacteal system there is also a lymphatic system, the one being a complement of the other. The fact that lymph and chyle are both conveyed into the general current of circulation, leads to the inference that the lymph, as well as the chyle, aids in the

process of nutrition. The body is continually undergoing change, and vital action implies waste of tissues, as well as their growth. Those organs which are the instruments of motion, as the muscles, cannot be employed without the wear and waste of their component parts. Renovated tissues must replace those which are worn out, and it is a part of the function of the absorbents to convey the revived, nutritive material into the general circulation. The same process which exhales stench, also liberates fragrance. The perfumer rejects the one, and secures the other for the regalement of our senses. So the lymphatics cull the valuable portions of the separated materials, and consign the *debris* to excretion. The glands are the workmen in the grand laboratory of the body, and again economically prepare these materials for its use and nourishment. Experiment has shown that the skin is a powerful absorbent; for in the lowest species of animals external absorption is as necessary to

the maintenance of life as the same process performed internally; and in certain conditions of the system, both the cutaneous and pulmonary surfaces absorb with astonishing rapidity.

62. Absorption is one of the earliest and most essential functions of animal and vegetable tissues. The simpler plants consist of only a few cells, all of which are employed in absorption; but in the flowering plants this function is performed by the roots. It is accomplished on the same general principles in animals, yet it presents more modifications and a greater number of organs than in vegetables. While animals receive their food into a sac, or bag, called the *stomach*, and are provided with absorbent vessels such as nowhere exist in vegetables, plants plunge their absorbent organs into the earth, whence they derive nourishing substances. In the lower order of animals, as sponges, this function is performed by contiguous cells, in a manner almost as elementary as in plants. In none of the invertebrate animals is there any *special* absorbent system. Internal absorption is classified by some authors as follows: interstitial, recrementitial, and excrementitial; by others as accidental, venous, and cutaneous. The general cutaneous and mucons surfaces exhale, as well as absorb; thus the skin, by means of its sudoriferous glands, exhales moisture, and is at the same time a powerful absorbent. The mucous surface of the lungs is continually throwing off carbonic acid and absorbing oxygen gas; and through their surface poisons are sometimes taken into the blood. The continual wear and waste to which living tissues are subject necessitates the provision of such a system of vessels for conveying away the worn-out, and supplying the body with new, materials. With absorption as its counterpart, nutrition accomplishes this function, and thus husband the vital supplies of the body.

CHAPTER VI.

PHYSICAL AND VITAL PROPERTIES OF THE BLOOD.

63. *Blood* is the animal fluid by which the tissues of the body are nourished. This pre-eminently vital fluid permeates each organ, distributes nutritive material to every texture, is essentially modified by respiration, and, finally, is the source of every secretion. Blood has four constituents, viz: Fibrine, Albumen, Salts (these elements, in solution, form the *liquor sanguinis*), and the Corpuscles. Microscopical examination shows that the corpuscles are of two kinds, the *red* and the *white*, the former being by far the more abundant. They are circular in form and have a smooth exterior. If spread out in thin layers and subjected to transmitted light, they present a slightly yellowish

Fig. 38.



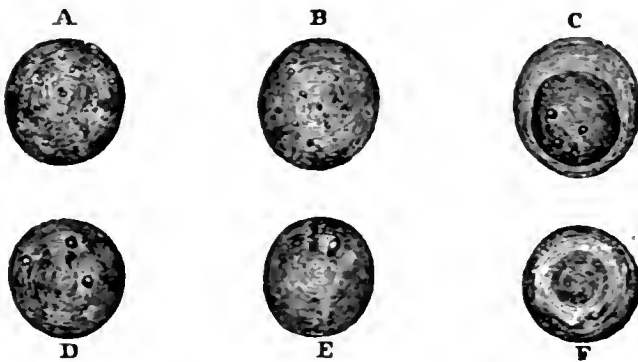
Red corpuscles of human blood, represented at *a*, as they are seen when rather *beyond* the focus of the microscope; and at *b* as they appear when *within* the focus. Magnified 400 diameters.

color, but when crowded together and viewed by refracted light, exhibit a deep red color. These blood-corpuscles have been termed *discs*, and are not, as some have supposed, solid material, but are very nearly fluid. The red corpuscles, although subjected to continual movement, have a tendency to approach each other, and when their flattened surfaces come in contact, so firmly do they ad-

here that they will change their shape sooner than submit to a separation. If separated, however, they will return to their

usual form. The white corpuscles are similar to the red in size, but have no adhesive power, although they possess greater refractive powers. They have been regarded by some physiologists as identical with those of the lymph and chyle. Dr. Carpenter believes that the function of these cells is to convert albumen into fibrine, by the simple process of cell-growth. There are various opinions concerning the manner in which the non-nucleated, red corpuscles of mammalian blood are produced from the colorless or lymph-corpuscles. Some physiologists entertain the notion that the lymph-corpuscles are transformed into the red corpuscles of the blood. Mr. Paget believes in this theory, and undertakes to explain the regular process by which the red blood-corpuscle is developed from the lymph-corpuscle. When blood is taken from an artery and allowed to re-

Fig. 39.



Development of human lymph and chyle-corpuscles into red corpuscles of blood. *A.* A lymph, or white blood-corpuscle. *B.* The same in process of conversion into a red corpuscle. *C.* A lymph-corpuscle with the cell-wall raised up around it by the action of water. *D.* A lymph-corpuscle, from which the granules have almost disappeared. *E.* A lymph-corpuscle, acquiring color; a single granule, like a nucleus, remains. *F.* A red corpuscle fully developed.

main at rest, it separates into two parts: a solid mass, called the *clot*, largely composed of fibrine; and a fluid known as the *serum*, in which the clot is suspended. The process of their separation is termed *coagulation*. The serum, mostly composed of *albumen*, is a transparent, straw-colored fluid having the odor and taste of blood. The whole

quantity of blood in the body is estimated to be from twenty to twenty-eight pounds. The distinctions between the arterial and the venous blood are marked, since in the arterial system the blood is uniformly red, and in the venous of a dark purple color. The blood-corpuscles contain both oxygen and carbonic acid in solution. When carbonic acid predominates, the blood is purple; when oxygen, scarlet. In the lungs the globules give up the carbonic acid, and absorb a fresh supply of oxygen, while in the

general circulation the oxygen disappears in the process of combustion, and is replaced in the venous blood by carbonic acid. The nutritive portions of food are converted into a homogeneous fluid, which pervades every part of the body, is the basis of every tissue, and, by general usage, is termed the *blood*. This varies in color and composition in different animals. In the polyp it is known as *chyme*, in many mollusks, as well as articulates, it is called *chyle*, but in vertebrates it is more highly organized and constitutes blood. In all the higher animal types it is of a red color, although redness is not one of its essential qualities. Some tribes of animals possess true blood, but it is not red; thus the blood of the insect is colorless and transparent, that of the reptile yellowish, in the fish the principal part is without color, but the blood of the bird is deep red. The blood of the mammalia is of a bright scarlet hue. The temperature of the blood varies in different species no less than in animals of the same species under different physiological conditions; for this reason, some animals are called *cold-blooded*. Disease also modifies the temperature of the blood; thus in fevers it is generally increased, but in cholera rapidly diminished. The blood has been aptly termed the "vital fluid," since there is a constant flow from the heart to the tissues and organs of the body, and a continual return after it has circulated through these parts. Its presence in every part of the body is one of the essential conditions of animal life, and is effected by a special set of organs, called the *circulatory organs*.

CHAPTER VII

PHYSIOLOGICAL ANATOMY.

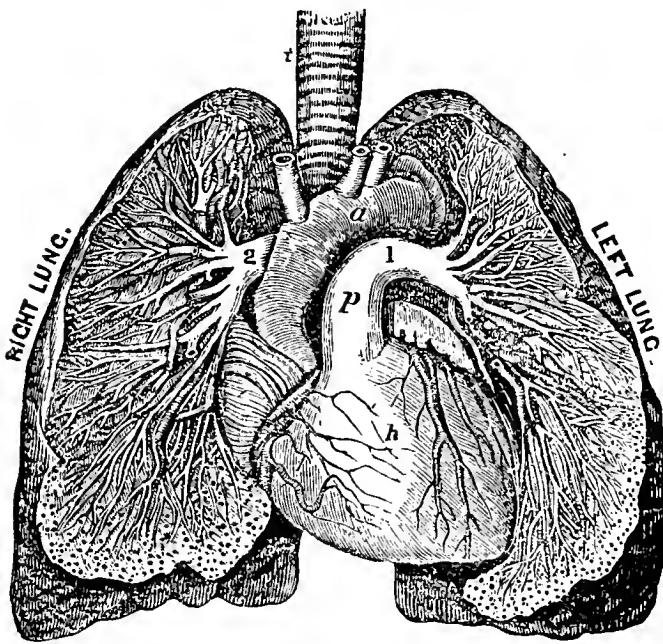
CIRCULATORY ORGANS.

64. Having considered the formation of chyle, traced it through the digestive process, seen its transmission into the *vena cava* (the vein at the lower part of the neck), and finally its conversion into blood, we come to notice how it is distributed to every part of the system. This is accomplished through organs which, from the round of duties they perform, are called *circulatory*. These are the Heart, Arteries, Veins, and Capillaries, which constitute the vascular system.

65. The *Heart* is placed obliquely in the left cavity of the chest, between the lungs, and has the form of an inverted cone, with its base directed upward and backward, toward the right shoulder, while its apex points downward to the left side of the chest. The heart is a double organ, having a right and a left side, and its base is attached to the posterior walls of the thorax, while the apex is free. It is surrounded and held in place by a membranous sac, called *pericardium*, a term which signifies *around the heart*. It is composed of muscular fibers. Its weight, in the female adult, is about eight ounces; in the male, ten ounces. The heart is divided at its apex into two parts, called *ventricles*, and at its base into the *auricles*. The base and apex are separated by internal walls. The auricles differ somewhat from the ventricles. Their walls are thinner as they serve for the reception of blood; the ventricular walls are thicker, and therefore more powerful. The left ventricle is stronger than the right. In the interior parts of the ventricles are fleshy

columns, called *columnæ carneæ*. Between the right auricle

Fig. 40.



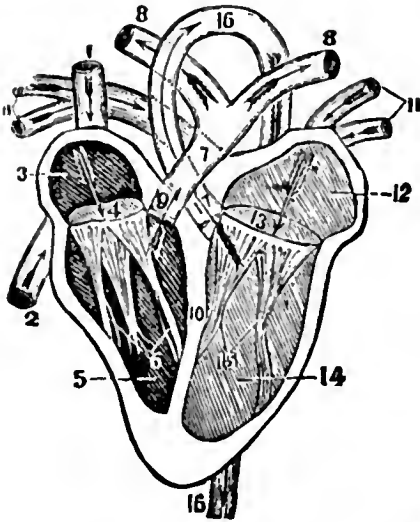
General view of the heart and lungs. *t.* Trachea, or windpipe. *a.* Aorta. *p.* Pulmonary artery. 1, 2. Branches of the pulmonary artery, one going to the right, the other to the left lung. *h.* The heart.

and ventricle are three valves, or folds, termed, on account of their number, *tricuspid*; between the left auricle and ventricle are two valves, called the *mitral*, and at their free edges are seen small cords attached to the fleshy columns, to prevent them from being carried into the auricle. The cavity of the right side of the heart is triangu-

lar in shape, while that of the left is oval. From the right ventricle arises the pulmonary artery, which proceeds upward to the left side, and after a distance of about one inch divides into two branches, one of which turns in a curve and enters the right lung, while the other passes directly to the left. Each subdivision of the pulmonary artery separates into numerous branches, and finally terminates in a delicate net-work within the lungs. The blood which they contain is then separated only by a thin membrane from the contiguous cells, and is received into the pulmonary veins. The function of the pulmonary artery is to convey venous blood to the lungs. The left ventricle gives rise to a very large artery called the *aorta*, which proceeds upward to the right side, then arches backward to the left, reversing its direction over the main air-tube of the left lung, where it passes downward in front of the spinal column; at the lower part of the abdominal cavity it divides into two arteries, which carry blood to the pelvis and lower extremities.

66. The *Arteries*, being always found empty after death, were supposed by the ancients, who did not understand the

Fig. 41.



1. The descending vena cava. 2. The ascending vena cava. 3. The right auricle. 4. The opening between the right auricle and the right ventricle. 5. The right ventricle. 6. The tricuspid valves. 7. The pulmonary artery. 8, 8. The branches of the pulmonary artery which pass to the right and the left lung. 9. The semi-lunar valves of the pulmonary artery. 10. The septum between the two ventricles of the heart. 11, 11. The pulmonary veins. 12. The left auricle. 13. The opening between the left auricle and ventricle. 14. The left ventricle. 15. The mitral valves. 16, 16. The aorta. 17. The semi-lunar valves of the aorta.

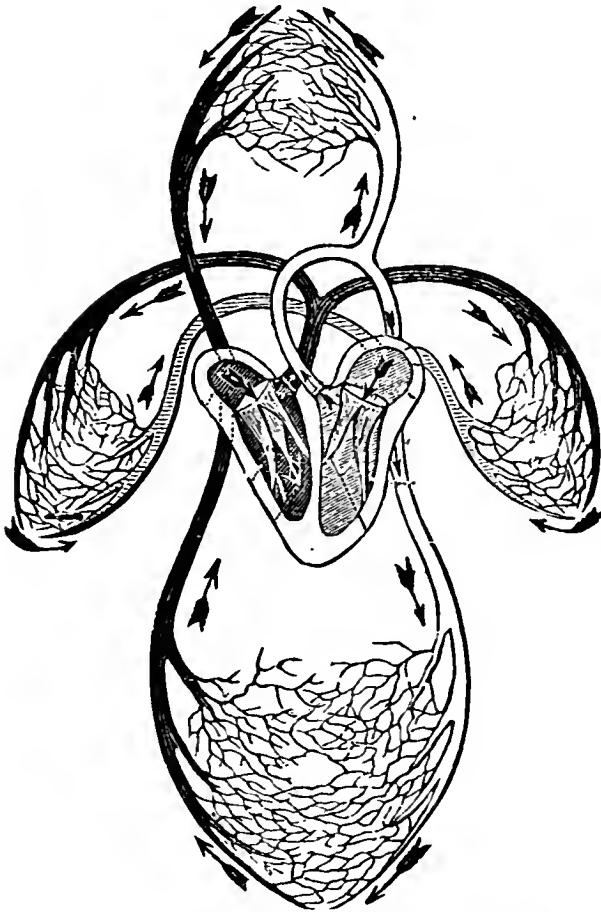
principle of circulation, to be tubes containing air; hence their name, which is a Greek word and signifies an *air-tube*. Arteries are the cylindrical tubes which carry blood to every part of the system. All the arteries arise from the two main trunks—the pulmonary and the aorta artery. They are of a yellowish white color, and their inner surface is smooth. The arteries have three coats, viz: (a.) The external coat, which is destitute of fat, and composed chiefly of cellular tissue, is very firm and elastic and can readily be dissected from the middle coat. (b.) The middle, or fibrous coat, is thicker than the external, and composed of yellowish fibers; its chief property is contractility. (c.) The internal coat consists of a colorless, thin, transparent membrane, yet so strong that it can, it is thought, better resist a powerful pressure than either of the others. Arteries are very elastic as well as extensible, and their chief extensibility

is in length. If an artery of a dead body be divided, although empty, its cylindrical form will be preserved. The throb experienced when a finger is placed over an artery which lies near the surface is termed the *pulse*.

67. The *Veins* are the vessels through which the venous blood returns to the auricles of the heart. They are more numerous than the arteries, and originate from numerous capillary structures, while the arteries usually begin from one main trunk. In some parts of the body, the veins correspond in number to

the arteries; while in others, there are two veins to every artery. The veins commence by minute roots in the capillaries, which

Fig. 42.



A representation of the venous and arterial circulation of the blood.

are everywhere distributed through the body, and gradually increase in size, until they unite and become large trunks conveying the dark blood to the heart. The veins have three coats. The external or cellular coat resembles that of the arteries; the middle is fibrous, but thinner than the corresponding one of the arteries; and the internal coat is serous, and analogous to that of those vessels. The veins belong to three classes, viz: (1.) The systemic veins bring the blood from different parts of the body and discharge it into the vena cava, by

means of which it is conveyed to the heart. (2.) The pulmonary veins bring the arterial or red blood from the lungs and carry it to the left auricle. (3.) The veins of the portal system originate in the capillaries of the abdominal organs, then converge into trunks and enter the liver, to branch off again into divisions and subdivisions of the minutest character.

68. The *Capillaries* form an extremely fine net-work, and are distributed to every part of the body. They are so universally prevalent throughout the skin, that the puncture of a needle would wound several of them. They may be called the true workmen of the human system, for they are in reality its builders.

These vessels receive the blood and take from it the particles necessary for the renewal of the body, after which it is transmitted through the veins, surcharged with carbon; and carried to the lungs.

69. The blood in its course passes from the right auricle into the right ventricle, and is prevented from reflowing by the tricuspid valves; thence it passes through the pulmonary artery to the lungs, and its return into the ventricle is obstructed by the semi-lunar valves. Here the blood is changed from a bluish to a scarlet color, and it then returns to the left auricle of the heart through the pulmonary veins. The left auricle, by its contraction, forces the blood into the left ventricle, and the mitral valves prevent its reflowing. From the left ventricle the blood is forced into the aorta, by which it is distributed to every part of the system. The semi-lunar valves prevent its return. It is estimated that from three to eight minutes are required for the blood to traverse its course through the body and return to the heart. The quantity of blood varies in different individuals: there are from twenty to twenty-eight pounds in the healthy adult.

70. No language can adequately describe the beauty of the circulatory system. The constant vital flow through the larger vessels, and the incessant activity of those so minute that they are almost imperceptible, fully illustrate the perfectness of the mechanism of the human body, and the wisdom and goodness of Him who is its author. By a mere blush, myriads of invisible blood-vessels spring into view; again they assume various shapes, and blending lines now reflecting upon themselves, they become mere incipient veins; again altering their course, they reveal themselves as branches sent off from an artery. Sometimes they are contracted, and again dilated; at times the flow of blood is quickened; at others, it is sluggish, if not altogether retarded. It is by pulse-beats and heart-throbs that life is measured.

CHAPTER VIII.

PHYSIOLOGICAL ANATOMY.

THE ORGANS OF RESPIRATION.

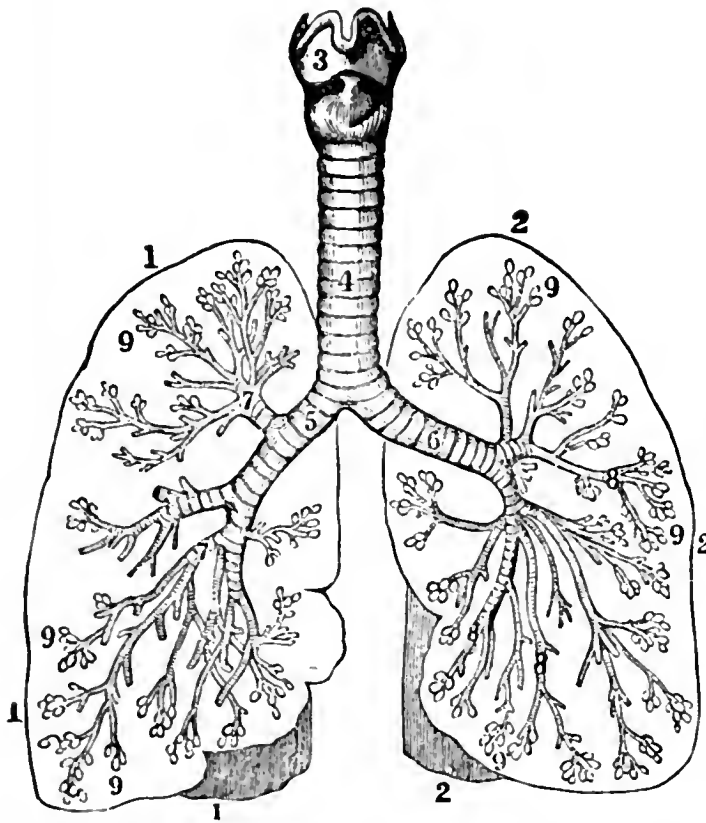
71. **The Organs of Respiration** are the Trachea (windpipe); Bronchia (subdivision of the trachea), Lungs and Air-cells. The *Trachea* is a vertical tube situated between the lungs below and a short quadrangular cavity above, called the *larynx*, which is part of the windpipe, and used for the purpose of modulating the voice in speaking or singing. In the adult, the trachea, in its unextended state, is from four and one-half to five inches in length, about one inch in diameter, and, like the larynx, is more fully developed in the male than in the female. It is a fibro-cartilaginous structure, and is composed of flattened rings, or segments of circles. It permits the free passage of air to and from the lungs.

72. The *Bronchia* are two tubes, or branches, proceeding from the windpipe to each lung. Upon entering the lungs, they divide and subdivide until, finally, they terminate in small cells, called the *bronchial or air-cells*, which are of a membranous character.

73. The *Lungs* are conical organs, situated within the chest, filling the greater part of it, since the heart is the only other organ which occupies much space in the cavity. The lungs are convex externally, and conform to the thoracic cavity, while the internal surface is concave for the reception of the heart. The size of the lungs depends upon the capacity of the chest. Their color varies, being of a pinkish hue in childhood, but

of a gray, mottled appearance in the adult. They are termed the right and the left lung. Each lung resembles a cone with

Fig. 43.



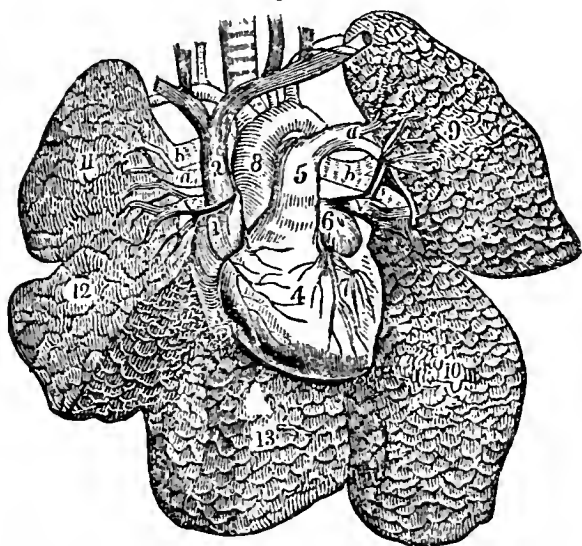
An ideal representation of the respiratory organs. 3. The larynx. 4. The trachea. 5, 6. The bronchia. 9, 9, 9, 9. Air-cells. 1, 1, 1, 2, 2, 2. Outlines of the lungs.

its base resting upon the diaphragm, and its apex behind the collar-bone. The right lung is larger, though shorter, than the left, and has three lobes, formed by deep fissures, or longitudinal divisions, while the left has but two lobes. Each lung has also lobules (small lobes) connected by cellular tissue, and these, in turn, are divided into air-cells. The lungs are abundantly

supplied with blood-vessels, lymphatics, and nerves. The density of a lung depends upon the amount of air it contains. Thus, experiment has shown that in a *fœtus* which has never breathed, the lungs are compact and will sink in water; but as soon as they become inflated with air, they spread over a larger surface, and are therefore more buoyant. Each lung is invested, as far as its root, with a membrane, called the *pleura*, which is then continuously extended to the cavity of the chest, thus performing the double office of lining it and constituting a partition between the lungs. The part of the membrane which forms this partition is termed the *mediastinum*. When this membrane is inflamed, the disease is called "pleurisy." The lungs are held

in position by the root, which is formed by the pulmonary veins, nerves, and bronchial tubes. Respiration is the twofold function

Fig. 44.



A representation of the heart and lungs. 4. The heart. 5. The pulmonary artery. 8. Aorta. 9, 11. Upper lobes of the lungs. 10, 13. Lower lobes. 12. Middle lobe of the right lung. 2. Superior vena cava. 3. Inferior vena cava.

of inspiration (taking air into the lungs) and expiration (expelling air from the lungs). The object of respiration is to eliminate carbonic acid from the blood, to supply its place with oxygen, and thus assist in converting the chyle into blood. The act of expiration consists chiefly in the elevation of the diaphragm and descent of the ribs, while inspiration is principally effected by the descent of the diaphragm and elevation of the ribs.

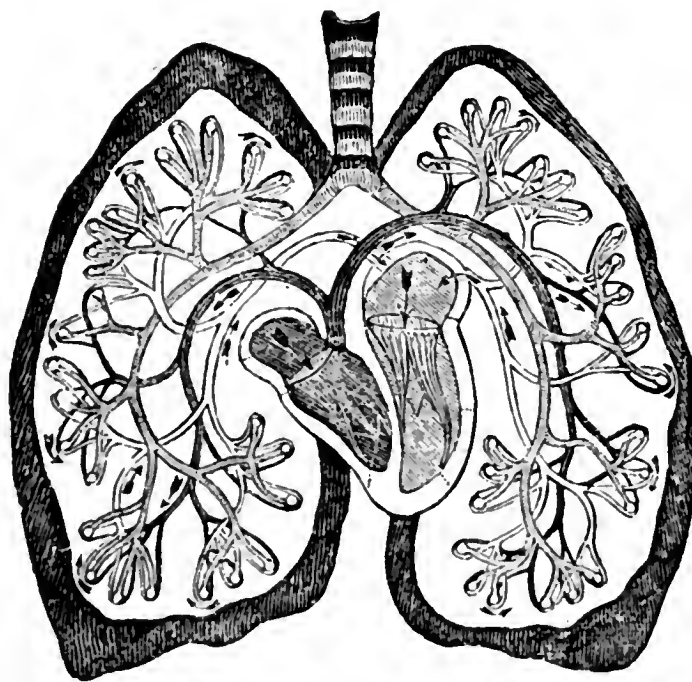
74. When the muscles of some portions of the air-passages are relaxed, a peculiar vibration follows, known as "snoring." Coughing and sneezing are sudden and spasmodic, and generally involuntary. Sighing is a prolonged, deep inspiration, followed by a rapid and generally audible expiration. It is remarkable that laughing and sobbing, although indicating opposite states of the mind, are produced in very nearly the same manner. In hiccough, contraction is more sudden and spasmodic than in laughing or sobbing. The quantity of oxygen consumed during sleep is estimated to be considerably less than that consumed during wakefulness.

75. It is difficult to estimate the amount of air taken into the lungs at each inspiration, as the quantity varies according to the condition, size, and expansibility, of the chest. The consumption of oxygen is greater when the temperature is low and during digestion. All the respiratory movements (so far as they are independent of the consciousness of the individual) are controlled by that part of the brain called the *medulla oblongata*.

The respiratory, or breathing process, is not instituted for the benefit of man only, for we find it both in the lower order of animals and in plant life. Nature is very economical in the arrangement of her plans, since the carbonic acid, which is useless to man, is indispensable to the existence of plants, and the oxygen rejected by them is appropriated to his use. In the lower order of animals the respiratory act is similar to that of the higher types, though not so complex; for there are no organs of respiration, as the lungs and gills are called. Thus, the higher the animal type, the more complex its organism. The effect of air upon the color of blood is very noticeable. If a quantity be drawn from the body, thus being brought into contact with the air, its color gradually changes to a brighter hue. There is a marked difference between the properties of the venous and the arterial blood.

76. The venous blood is carried to the right side of the heart and lungs, and finally returned to the left side, where it is converted into arterial blood. It is now of uniform quality, ready to be distributed throughout the body, and capable of sustaining and nourishing life. Man breathes by means of lungs: but who can understand this wonderful mechanism, so perfect in all its parts? Though every organ is subservient to

Fig. 45.



View of the pulmonary circulation.

another, yet each has its own office to perform. The minute air-vesicles are for the aeration of the blood; the larger bronchial

tubes ramify the lungs, and suffuse them with air; the trachea serves as a passage for the air to and from the lungs, while at its upper extremity is the larynx, which has been fitly called the organ of the human voice, as it is the most complete of all musical instruments. At its extremity we find a sort of shield, called the *epiglottis*, the office of which is to prevent the intrusion of foreign bodies.

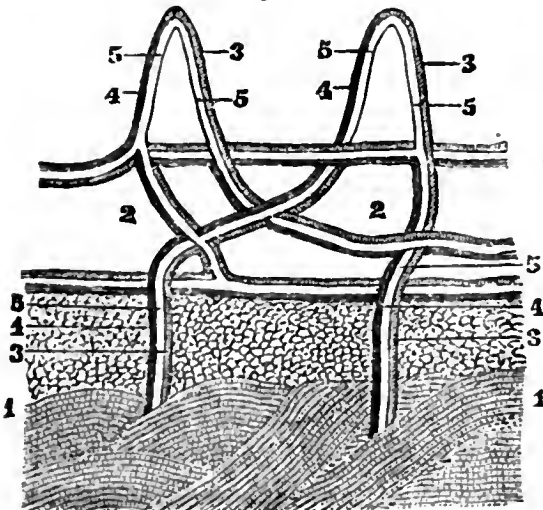
CHAPTER IX.

PHYSIOLOGICAL ANATOMY.

THE SKIN.

77. Through digestion the blood is continually supplied with material for its renewal; and while the nutritive constituents of the food are retained to promote the growth of the body, those which are useless or injurious are in various ways expelled. There is, perhaps, no part of the body more actively concerned in this removal than the skin.

Fig. 46.



An ideal view of the papillæ. 1, 1. Cutis vera 2, 2. Papillary layer. 3, 3. Arteries of the papillæ. 4, 4. Nerves of the papillæ 5, 5. Veins of the papillæ.

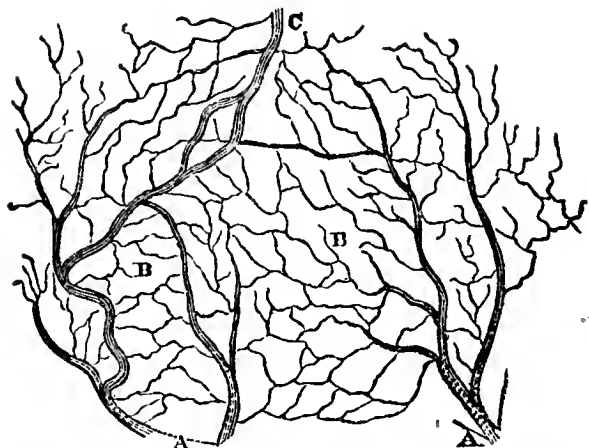
78. The skin is a membranous envelope covering the whole body. It consists of two layers, viz: the Cutis Vera (true skin) and the Cuticle (epidermis). The *True Skin* is composed of fibers similar to those of the cellular tissue. It consists of white and yellow fibers, which are more densely woven near the surface than at the center; the white gives

strength, the yellow strength and elasticity combined. Though the true skin can properly be said to consist of but one layer,

yet it has two surfaces, an external and an internal surface, differing in their appearance and characteristics. Upon the external surface are little conical prominences, known as *papillæ*. The *papillæ* are irregularly distributed over the body, in some parts being smaller and more numerous than in others, as on the finger-ends, where their summits are so intimately connected as to form a tolerably smooth surface. It is owing to their perfect development that the finger-tips are adapted to receive the finest impressions of touch. Although every part of the skin is sensitive, yet the *papillæ* are extremely so, for they are the principal means through which the impressions of objects are communicated. Each *papilla* not only has a minute vein, artery, and nerve, but it also incloses loops of tactile nerves and numerous blood-vessels. When the body is exposed to cold, these *papillæ* can be more distinctly seen in the form of prominences known as "goose pimples."

79. The internal surface of the skin, termed the *corium*, consists of numerous depressions, each of which furnishes a receptacle

Fig. 47.



A section of the skin, showing its arteries and veins. A, A. Arterial branches. B, B. Capillaries in which the branches terminate. C. The venous trunk into which the blood from the capillaries flows.

for fat. While the skin is supplied with a complete net-work of arteries, veins, and nerves, which make it sensitive to the slightest touch, it also has numerous lymphatic vessels, so minute that they are invisible to the naked eye.

80. Among the agents adapted for expelling the excretions from the system, none surpass the *Sudoriferous*

Glands. These are minute organs, which wind in and out over the whole extent of the true skin, and secrete the perspiration. Though much of it passes off as insensible transpiration, yet it often accumulates in drops of sweat, during long-continued exercise or exposure to a high temperature. The office of the

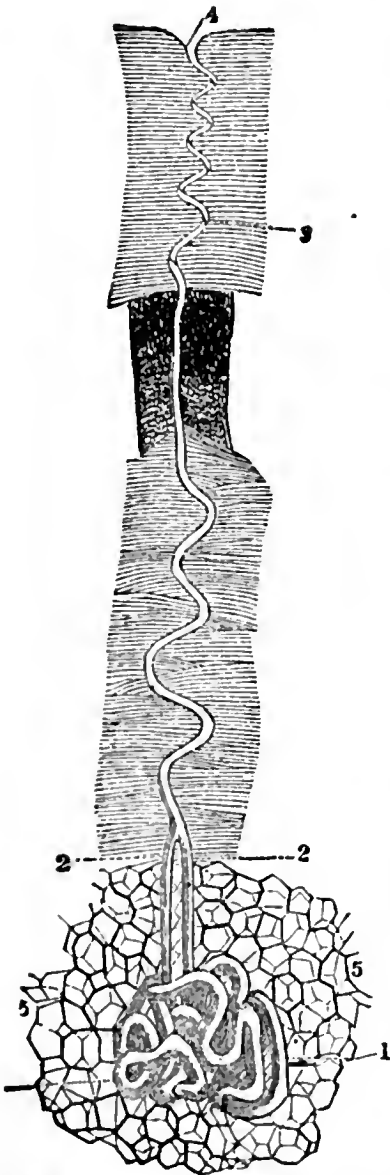
perspiration is two-fold: it removes noxious matter from the system, and radiates the surplus animal heat, thereby equalizing

the temperature of the body. It also renders the skin soft and pliable, thus better adapting it to the movements of the muscles. The *Sebaceous* (oil) *Glands*, which are placed in the true skin, are less abundant where the sudoriferous glands are most numerous, and *vice versa*. Here, as elsewhere, nature acts with systematic and intelligent design. The perspiratory glands are distributed where they are most needed,—in the eyelids, serving as lubricators; in the ear passage, to produce the cerumen, or wax, which prevents the intrusion of small insects; and in the scalp, to supply the hair with its own pomatum.

81. The *Cuticle*, or *Epidermis*, (so called because it is *placed upon the skin*) is the outer layer of the skin. Since it is entirely destitute of nerves and blood-vessels, it is not sensitive. Like the cutis vera, it has two surfaces composed of layers. The internal, or *Rete Mucosum*, which is made up chiefly of pigment cells, is adapted to the irregularities of the cutis vera, and sends prolongations into all its glandular follicles. The external surface, or *Epidermis* proper, is elastic, destitute of coloring matter, and consists of mere horny scales. As soon as dry, they are removed in the form of scurf,

and replaced by new ones from the cutis vera. These scales may be removed by the wet-sheet pack or by friction. The

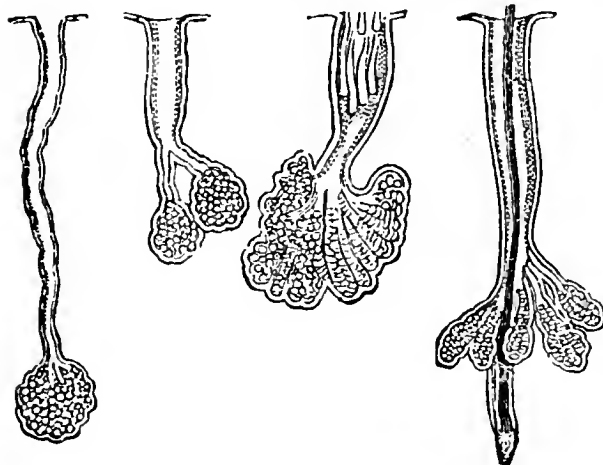
Fig. 48.



A perspiratory gland, highly magnified. 1, 1. The gland. 2, 2. Excretory ducts uniting to form a tube which tortuously perforates the cuticle at 3, and opens obliquely on its surface at 4.

cuticle is thus constantly undergoing renewal. This layer serves to cover and protect the nervous tissue of the true skin beneath.

Fig. 49.



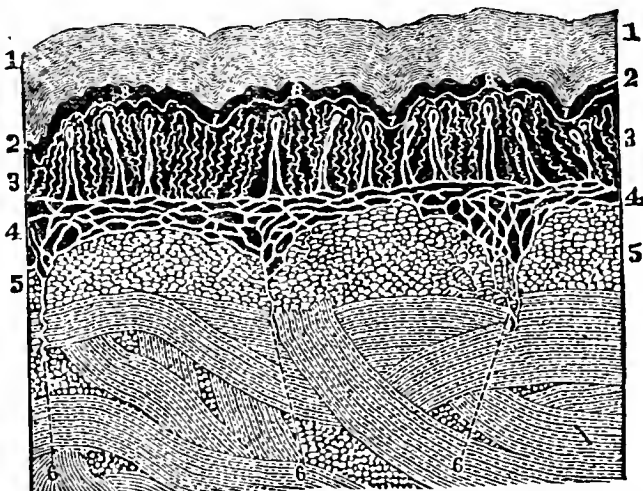
A representation of oil-tubes from the scalp and nose.

We may here observe that the cuticle contains the pigment for coloring the skin. In dark-complexioned races, as the negro, the cuticle is very thick and filled with black pigment. The radiation of animal heat is dependent upon the thickness and color of this cuticle. Thus, in the dark races, the pigment cells are most

numerous, and in proportion as the skin is dark or fair do we find these cells in greater or less abundance. The skin of the Albino is of pearly whiteness, devoid even of the pink or brown tint which the European always has.

This peculiarity must be attributed to the absence of pigment cells, which, when present, always present a more or less dark color. That *climate* alone is capable of producing all these diversities is simply absurd. The Esquimaux who live in Greenland and the arctic regions

Fig. 50.



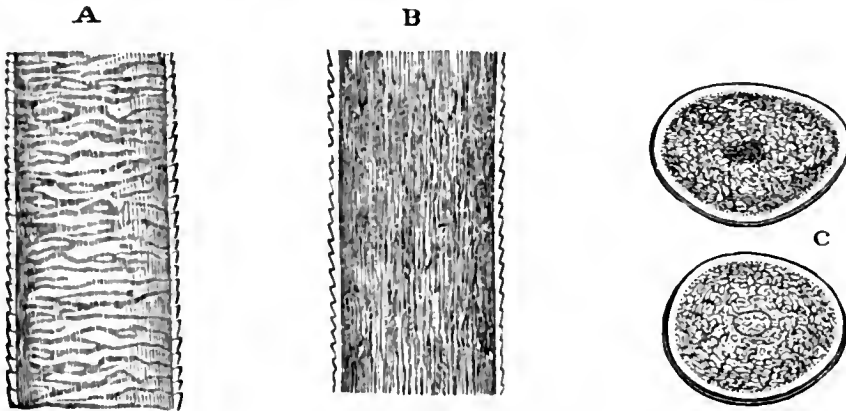
Anatomy of the skin. 5, 5. Cutis vera (true skin). 4, 4. Nervous tissue. 3, 3. Sensitive layer in which are seen the nerves. 2, 2. The layer containing pigment cells. 1, 1. Epidermis (cuticle).

of America are remarkable for the darkness of their complexion. Humbolt remarks that the American tribes of the tropical

regions have no darker skin than the mountaineers of the temperate zone. Climate may *modify* the complexion, but it does not *make* it.

82. *Hairs* are horny appendages of the skin, and, with the exception of the palm of the hands, the sole of the feet, the back of the fingers and toes between the last joint and the nail, and the upper eyelids, are distributed more or less abundantly

Fig. 51.



Structure of the human hair. *A.* External surface of the shaft, showing the transverse striae and jagged boundary, caused by the imbrications of the scaly cortex. *B.* Longitudinal section of the shaft, showing the fibrous character of the medullary substance, and the arrangement of the pigmentary matter. *C.* Transverse sections, showing the distinction between the cortical and medullary substances, and the central collection of pigmentary matter, sometimes found in the latter. Magnified 310 diameters.

over every part of its surface. Upon the greater part of the body the hairs are very minute, and in some places are not apparent above the level of the skin; but the hair of the head, when left to its full growth, attains a length of from twenty inches to a yard, and in rare instances it has reached six feet. A hair may be divided into a middle portion, or *shaft*, and two extremities; a peripheral extremity, the *point*; and a central extremity inclosed within the hair-sac, or follicle, the *root*. The root is somewhat greater in diameter than the rest of the shaft, and cylindrical in figure, while its lower part expands into an oval mass, called the *bulb*. The shaft of the hair is not often perfectly cylindrical, but it is more or less flattened, which circumstance gives rise to waving and curling hair; and when the flattening is spiral in direction the curling will be very great. A hair is

composed of three different layers of cell-tissue, viz: a loose cellular substance which occupies its center, and constitutes the medulla, or pith; the fibrous tissue, which incloses the medulla, and forms the chief bulk of the hair; and a thin layer which envelops the fibrous structure, and forms the smooth surface of the hair. The medulla is absent in the downy hairs, but in the coarser class it is always present, especially in white hair. The color of hair is due partly to the granules and partly to an intergranular substance which occupies the interstices of the granules and of the fibers. The quantity of hair varies according to the proximity and condition of the follicles. The average number of hairs of the head may be stated at 1,000 in a superficial square inch, and, as the surface of the scalp is about one hundred and twenty superficial square inches, the average number of hairs on the entire head is 120,000. The hair possesses great durability, as shown in its endurance of chemical processes, and in its discovery in the tombs of mummies more than two thousand years old. The hair is remarkable for its elasticity and strength. Hair is found to differ from horn in chemical composition. According to Vauquelin, its constituents are animal matter; a greenish-black oil; a white, concrete oil; phosphate of lime; a trace of carbonate of lime; oxide of manganese; iron; sulphur; and silice. Red hair contains a reddish oil, a large proportion of sulphur, and a small quantity of iron. White hair has a white oil and phosphate of magnesia. It has been supposed that hair would grow after death, but this theory was probably due to the lengthening of the hair by the absorption of moisture from the body or atmosphere.

83. The *nails* are another class of appendages of the skin. They consist of thin plates of horny tissue, having a root, body, and free extremity. The root, as well as the lateral portion, is implanted in the skin, and has a thin margin which is received into the groove of the true skin. The under surface is furrowed, while the upper is comparatively smooth. The nails grow in the same manner as the cuticle.

CHAPTER X.

PHYSIOLOGICAL ANATOMY.

SECRETION.

84. The term *Secretion*, in its broadest signification, is applied to that process by which substances are separated from the blood, either for the reparation of the tissues or excretion. In the animal kingdom the process is less complicated than in vegetable life. In the former, it is really a *separation* of the nutritive materials from the blood. The process, when effectuated for the removal of effete matter, is, in a measure, chemical and therefore the change is greater.

85. Three elementary constituents are observed in secretory organs, viz: (1), cells, (2), a basement membrane, and (3), blood-vessels. Obviously, the *essential* part is the *cell*.

86. Three physical conditions are necessary for a healthful action of the secretory organs. (1.) A copious supply of blood. (2.) The materials of the blood should be nutritive and abundant. (3.) The nervous system also influences the process of secretion to a great extent. Intense emotion will produce tears and the sight of some favorite fruit will increase the flow of saliva.

87. The process of secretion depends upon the anatomical and chemical constitution of the cell-tissues. The principal secretions are (1), Perspiration; (2), Tears; (3), Sebaceous matter; (4), Mucus; (5), Saliva; (6), Gastric juice; (7), Milk; (8), Intestinal juice; (9), Pancreatic juice; (10), Bile.

88. **Perspiration** is a watery fluid secreted in minute glands, which are situated in every part of the skin, but more

numerous on the anterior surfaces. Filiform tubes, only $\frac{1}{400}$ of an inch in diameter, and lined with epithelium, penetrate the skin, and terminate in rounded coils, enveloped by a network of capillaries, which supply the secretory glands with blood. According to Krauss, the entire number of perspiratory glands can not be less than two million three hundred thousand, and the length of each glandular coil being $\frac{1}{15}$ of an inch, we may estimate the length of tubing to be not less than two miles and a half. This secretion has a sp. gr. of 1003.5 and according to Dr. Dalton is composed of

Water,	995.50
Chloride of Sodium,	2.23
Chloride of Potassium,	0.24
Sulphate of Soda and Potassa,	0.01
Salts of organic acids with Soda and Potassa,	2.02
	<hr/>
	1000.00

Traces of organic matter mingled with a free volatile acid, are also found in the perspiration. It is the acid which imparts to the secretion its peculiar odor, and acid reaction. The process of its secretion is continuous, but, like all bodily functions, it may be subjected to influences which will augment or retard its activity. If, in a state of repose, evaporation prevents its appearance in the *liquid* form, it has received the name of *invisible transpiration*. If there be unusual muscular activity, it collects upon the skin, and is termed *sensible perspiration*. This secretion performs an important office in the animal economy, by maintaining the internal temperature at 100° F. Even in the Arctic regions where the explorer has to adapt himself to a temperature of—40° the generation of heat in the body prevents the internal temperature from falling below this standard. On the contrary, if the circulation be quickened by muscular exertion, the warmer blood flowing from the internal organs into the capillaries, raises the temperature of the skin, secretion is augmented, the moisture exudes from the pores, and evaporation begins. A large portion of the animal heat is absorbed in this process, and the temperature of the skin is reduced. A very warm, dry atmosphere can be borne with impunity, but on the introduction of moisture, evaporation ceases, and the life of the animal is endangered. Three conditions may be assigned as

effective causes in retarding or augmenting this cutaneous secretion;—(1), a variation in the temperature of the atmosphere, (2), muscular activity and (3), nervous states. The emotions exert a remarkable influence over the action of the perspiratory glands. Intense fear will cause great drops of perspiration to accumulate on the skin, while the salivary glands will remain inactive.

89. **Tears.** The lachrymal glands are small lobular organs, situated at the outer and upper orbit of the eye, and open by from eight to twelve ducts upon the conjunctiva, between the eyelid and its inner fold. This secretion is an alkaline, watery fluid. According to Dr. Dalton, its composition is as follows:—

Water,	982.0
Albuminous matter,	5.0
Chloride of Sodium,	13.0
Mineral Salts,	.2
	<hr/>
	1000.2

The office of this secretion is to preserve the brilliancy of the eye. The tears are spread over this organ by the reflex movement of the eyelid, called “winking,” and then collected in the *puncta lachrymalia* and discharged into the nasal passage. This process is constant during life. The effect of its repression is seen in the dimmed appearance of the eye after death. The emotion of grief, or, excessive laughter, will excite these glands until they overflow the lachrymal ducts.

90. **Sebaceous Matter.** Three modifications of this secretion are found in the body. (1.) A product of the sebaceous glands of the skin, is found in those parts of the body which are covered with hairs, also on the face and the external surface of the organs of generation. The sebaceous glands consist of a group of flask-shaped cavities opening into a common excretory duct. Their secretion serves to lubricate the hair and soften the skin. (2.) The ceruminous glands of the *external auditory meatus* are long tubes terminating in a glandular coil, within which is secreted the glutinous matter of the ear. This secretion serves the double purpose of moistening the outer surface of the membrana tympani, and, by its strong odor, preventing the intrusion of insects. (3.) The meibomian glands are arranged in racemous form along the excretory duct which opens just behind the roots of the eyelashes. The oily nature of this

secretion prevents the tears (when not stimulated by emotion) from overflowing the lachrymal canals.

91. **Mucus.** The mucous membranes are provided with minute glands which secrete a viscid, gelatinous matter, called *mucus*. The peculiar animal matter which it contains is termed *mucosine*. These glandulæ are most numerous in the Pharynx, Esophagus, Trachea, Bronchia, Vagina and Urethra. They consist of a group of secreting sacs, terminating at one side in a closed tube, while the other opens into a common duct. The mucus varies in composition in different parts of the body; but in all, it contains a small portion of insoluble animal matter. Its functions are threefold. It lubricates the membranes, prevents their injury and facilitates the passage of food through the alimentary canal.

92. **Saliva.** This term is given to the first of the digestive fluids, which is secreted in the buccal glands. It is a viscid, alkaline liquid (sp. gr. 1005). If allowed to stand, a whitish precipitate will be observed. Examinations with the microscope show it to be composed of minute, granular cells and oil globules, mingled with numerous scales of epithelium. According to Bidder and Schmidt, the composition of saliva is as follows:

Water,	995.16
Organic matter,	1.34
Sulpho-cynide of Potassium,	0.06
Phosphates of Soda, Lime and Magnesia, . . . . .	.98
Chlorides of Sodium and Potassium, . . . . .	.84
Mixture of Epithelium,	1.62
	<hr/>
	1000.00

Two kinds of organic matter are present in the saliva; one, termed *ptyaline*, imparts to the saliva its viscosity, and is obtained from the secretions of the submaxillary and sublingual glands; another, which is not glutinous, is distinguished by the property of coagulating when subjected to heat. The saliva is composed of four elementary secretions, derived respectively, from the mucous follicles of the mouth and the parotid, submaxillary, and sublingual glands. The process of its secretion is constant but is greatly augmented by the contact of food with the lining membrane. The saliva serves to moisten the triturated food, facilitate its passage, and has the property of converting starch

into sugar; but the latter quality is counteracted by the action of the gastric juice in the stomach.

93. **Gastric juice.** The tubules or follicles situated in the mucous membrane of the stomach secrete a clear, colorless, acid liquid, termed the gastric juice. According to Lehmann and Schmidt, its composition is as follows:

Water,	975.00
Organic matter,	15.00
Lactic acid,	4.78
Chloride of Sodium,	1.70
Chloride of Potassium,	1.08
Chloride of Calcium,	0.20
Chloride of Ammonium,	0.65
Phosphate of Lime,	1.48
Phosphate of Magnesia,	0.06
Phosphate of Iron,	0.05
	<hr/>
	1000.00

The presence of the organic matter (pepsine) occasions the phenomena designated as *catalysis* or *catalytic transformation*. The organic matter induces, without decomposition, the chemical change of starch into sugar; and the "entire process of nutrition, so far as the organic matters are concerned, consists of these catalytic transformations." The *lactic acid* is the most important constituent of the gastric juice, and imparts to this secretion its physiological properties. By the peristaltic movement of the stomach, the food is mingled with the gastric juice which acts as a decomposing agent. The secretion of the gastric juice is influenced by nervous conditions. Excess of joy or grief will effectually retard or even arrest its flow.

94. **Milk.** The milk is a white, opaque fluid, secreted in the lacteal glands of the female mammalia. These glands consist of numerous follicles, grouped around an excretory duct, which unites with similar ducts coming from other lobules. By successive unions they form large branches, termed the *lactiferous* ducts, which open by eighteen or twenty minute orifices on the extremity of the mamillæ. The most important constituent of milk is *caseine*; it also contains oily and saccharine substances. This secretion, more than any other, is influenced by nervous conditions. A mother's bosom will fill with milk at the thought of her infant

child. Milk is oftentimes poisoned by a fit of ill-temper, and the infant thrown into convulsions, which in some instances prove fatal.

95. **Intestinal juice.** Upon leaving the stomach, that portion of the food (the starchy matter) which has not undergone catalytic transformation, passes into the third division of the alimentary canal, termed the small intestine. In this organ the starch is converted into sugar by the action of the intestinal juice—a product of two classes of glands, situated in the mucous membrane.—These glandulæ are termed, respectively, “follicles of Lieberkuhn” and the “glands of Brunner.” The former consist of simple tubules, lined with epithelium and are far more numerous than the glands. The latter are clusters of rounded follicles, opening into a common excretory duct. The sacs are composed of delicate, membranous tissue, and have numerous nuclei on their walls. The difficulty of obtaining the intestinal juice for experiment is obvious, and for this reason, its constitution is not known. Physically, it resembles the secretion of the mucous follicles of the mouth, being colorless and vitreous in appearance, and having an alkaline nature.

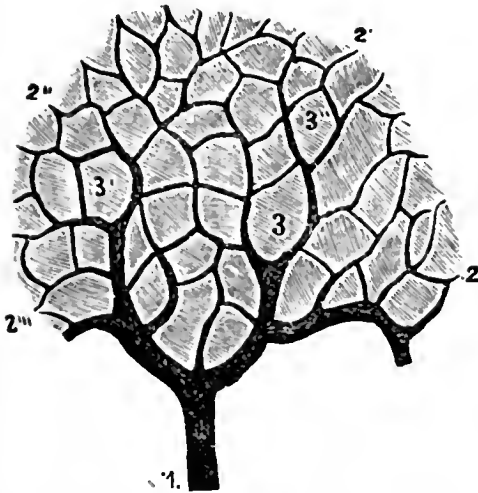
96. **Pancreatic juice.** The oily portion of the food now remains to be transformed. Immediately after entering the intestine, it is converted into a white, opaque emulsion termed chyle. This transformation is accomplished by the action of the pancreatic juice,—a colorless fluid, secreted in a lobular gland which is situated behind the stomach, and runs transversely from the spleen across the vertebral column to the duodenum. The most important constituent of the pancreatic juice is the organic matter, termed *pancreatine*. This secretion performs the last office in the process of digestion, viz: *emulsion*.

97. We may recapitulate the phenomena of digestion in a few words. The food is introduced into the mouth, triturated, and mingled with the saliva. In the stomach the gastric juice changes, by catalytic transformation, all the ingredients except the starch and oil. In the small intestine the starch is converted into sugar, and lastly the oily matter is transformed into chyle.

98. **The Bile.** The liver is very peculiar in its anatomical structure, and is supplied with venous blood. After circulating through the organs of the chest and abdomen, the blood is

collected by the veins, and discharged into the portal vein which conveys it to, and through the liver. The portal vein divides and subdivides into branches the smallest of which are only $\frac{1}{1200}$ of an inch in diameter (Kölliker). These branches include pentagonal and hexagonal spaces. The hepatic substance contained

Fig. 52.



Section of the Liver, showing the ramifications of the portal vein. 1. Twig of portal vein. 2, 2', 2'', 2''' Interlobular vein. 3, 3', 3'' Acini.

within the terminations of the portal vein are termed the "acini" of the liver. Each acinus is composed of minute cellular bodies known as the hepatic cells. In these cells the blood is deprived of certain nutritive materials which are converted into bile. This secretion is a glutinous fluid, varying in color from a dark golden brown to a bright yellow, and a sp. gr. ranging from 1018 to 1036. If agitated, it has a frothy appearance. Physiologists have experienced much difficulty in studying the char-

acter of this secretion from the instability of the biliary ingredients, when subjected to chemical manipulations.

99. *Biliverdine* is an organic substance peculiar to the bile, and imparts to that secretion its color. When this constituent is re-absorbed by the blood and circulates through the bodily tissues, the skin assumes a bright yellow hue,—the unfailing symptom of jaundice. *Cholesterine* is an inflammable, crystallizable substance, destitute of nitrogen and soluble in alcohol or ether. It is present in the spleen and all the nervous tissues. It is highly probable that it exists in the blood, in some state or combination, and assumes a crystalline form only when acted upon by other substances or elements. Two other constituents, more important than either, mentioned above, are collectively termed "*biliary salts*." These ingredients were discovered in 1848, by Strecker, who termed them *glyko-cholate* and *taurocholate of soda*. Both are crystalline, resinous substances, and although resembling each other in many respects, the chemist

may distinguish them by their reaction: for both will yield a precipitate if treated with subacetate of lead, but only the glykocholate will give a precipitate with acetate of lead. In testing for biliary substances, the most satisfactory method is the one proposed by Pettenkofer. A solution of cane-sugar (one part of sugar to four parts of water) is mixed with the suspected substances. Dilute sulphuric acid is then added until a white precipitate falls, which is redissolved in excess of the acid. Continue to add the sulphuric acid and it becomes opalescent, and passes through the successive hues of scarlet, lake, and a rich purple. The bile does not aid in the process of digestion. Careful experiments have proved that it is a *constant* secretion; but its flow is most abundant after the food is introduced into the stomach, probably owing to the fact that the intestines are then more active in their absorption. During its passage through the intestines it disappears. It is not eliminated, and Pettenkofer's test has failed to detect its existence in the portal vein. These facts lead physiologists to the conclusion, that it undergoes some change of a catalytic nature in the intestines, is absorbed, circulated through the tissues, ever completing the same circle of functions.

CHAPTER XI.

PHYSIOLOGICAL ANATOMY

EXCRETION.

100. Under Secretion we noticed only those substances which are *useful* in the animal economy. There are substances which having lost their vitality, are no longer available for the nutrition of the bodily tissues. They are readily distinguished from the vital constituents and are termed *excrementitious*. The greater part of them contain a large proportion of nitrogen, and are soluble in water. They are produced in the tissues, absorbed by the blood, and conveyed to the excretory organs, by which they are eliminated from the body. That the process of excretion is necessary to the continuance of life, is proved by the fatality of its suppression. The principal excrementitious substances, are the constituents of urine and carbonic acid. The *urine* is an amber colored fluid, having a peculiar odor, and a sp. gr. of 1024. The excretory organs are the *kidneys*. They do not secrete, but only solve and prepare for excretion. The principal constituents of urine are Urea, Creatine, Creatinine, and the Urates of soda, potassa and ammonia. Of these, the first is a crystallizable substance, soluble in water and contains nitrogen. In its natural state, it is instable if exposed to external influences, and exists in the urine in a proportion of about thirty parts to a thousand. That the production of urea is influenced by muscular activity, was experimentally proved by Prof. A. Flint. E. P. Weston, the noted pedestrian, was the

subject, and the conclusion might be interesting to the reader. The following table gives the most important results:

DAILY QUANTITY OF	1st Period. five days before walk.	2d Period. five days durin'g walk.	3d Period. five days after walk.
Urea,	628.24	722.16	726.79
Nitrogen in food.	339.46	234.76	440.93
Nitrogen in urea.	293.15	337.01	339.17
Total nitrogen in urea and feces,	315.09	361.52	373.15
Nitrogen in urea and feces per 100 parts of nitrogen in food,	95.53	174.81	91.93

During the period previous to the walk, the exercise was eight miles each day; in the second period, it was an average distance of sixty-four miles; and only two miles per day in the last period. In the second period, there was a loss of three and one-half pounds in weight, which was regained in the five subsequent days. Prof. Flint attributed this loss of weight to the *waste* of muscular tissue, and its replacement to the retention of nitrogenous substances.

101. *Creatine and creatinine* are crystallizable substances, soluble in water and spirits. They are found in the muscles, blood and urine. The first originates in the muscles, is absorbed and eliminated. The origin of the second, is not really known, but it is supposed to be an indirect product of creatine. Both are constituents of the blood and urine of animals. The *urates* are formed by the union of the bases, soda, potassa and ammonia with uric acid. They are crystallizable substances, soluble in hot water and alcohol, but insoluble in ether. The most abundant of these constituents is urate of soda, which, in importance, ranks next to urea. Its origin is not known; but it is formed, probably, either in the tissues or blood, and absorbed and eliminated by the kidneys. Besides these elements, certain organic matters are found in the urine, and many substances as iodine, quinine, ether and sugar pass out of the circulation through this channel.

102. *Carbonic acid*, the second of the excrementitious substances, is eliminated from the system in various ways, but principally in expiration. It is formed by the decomposition of sugar in the tissues, and is not, as was formerly supposed, the result of

oxidation. It is absorbed by the blood, which conveys it to the lungs, where it is exhaled in a gaseous form. The amount thus thrown out of the system varies in persons of different ages and constitutions, always being greater in the male, when the muscular system is fully developed. This vital phenomenon is an important factor in Nature's economy. The vegetable world inhales the carbonic acid, which it transforms into its structures. The animal world assimilates the oxygen for the nutrition and development of its tissues. The existence of the one is dependent upon, and implies that of the other.

103. From the foregoing synopsis of the nutritive processes, we are able to form an approximate idea of the quantity of daily ingesta and egesta. The following table, given by Dr. Dalton, is the result of careful experiment:

Absorbed during 24 hours.		Discharged in 24 hours.	
Oxygen,	1.470 lbs.	Carbonic Acid,	1.630 lbs.
Water,	4.535 "	Aqueous Vapor,	1.155 "
Albuminous matter, . . . . .	.305 "	Perspiration,	1.930 "
Starch, . . . . .	.660 "	Water of Wine,	2.020 "
Fat, . . . . .	.220 "	Urea and Salts, . . . . .	.137 "
Salts, . . . . .	.040 "	Feces, . . . . .	.358 "
Total,	7.230	Total,	7.230

104. The materials thus absorbed are decomposed, and actually combine with the tissues. Under the influence of the vital functions the entire substance of the body is thus constantly replaced by new tissues.

Fig 53.**Nervous System.**

CHAPTER XII.

PHYSIOLOGICAL ANATOMY.

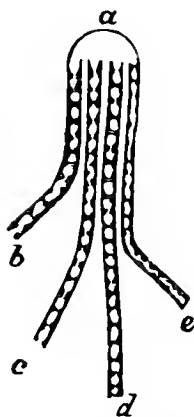
THE NERVOUS SYSTEM.

105. All the symmetry of the human form—the perfect adjustment of its parts—the harmonious blending of strength and elasticity—would be futile without the agency of this vitalizing system of power. Hitherto we have considered the anatomical and functional characteristics of the organs employed in Digestion, Circulation and Respiration; we have found the living process of nutrition to be, in all its essential features, a resultant of physical and chemical forces; and we have also traced the gradual evolution of the latent germ from its mystic birth to maturity; but in each instance we have presupposed the existence and activity of the nerves. Without their vivifying influence, man would not be an active, sentient being—only an inanimate, worthless organism. The nerves are omnipresent. There is not an inch of bodily tissue into which their delicate filaments and ramifications do not penetrate, and form a network of conductors over which are sent the stimuli of volition, feeling and instinct. They may aptly be termed the *agents of life*.

106. Three fundamental modifications of neurine enter into the composition of the nerves; (1), minute masses of a grayish or ash-colored, granular substance, termed *ganglion globules*; (2), a white, fibrous tissue which serves to connect the nerve centers; (3), gelatinous fibres,—of an oval form,—which, when united in cords, present a yellowish-gray color. These mutations are respectively termed, by anatomists, the *vesicular*, *fibrous* or *tubular* and *gelatinous neurine*.

107. The fibres, when collected in bundles, are termed nerve-trunks or cords. These cords may be separated into filaments which are imperceptible to the naked eye. Thousands of them are contained within the space of a single inch. The minutest filaments are found in the brain, and have an average diameter of one ten thousandth of an inch; but in the spinal cord and its numerous branches, they do not exceed one three thousandth of an inch in diameter. The "ultimate nervous filaments" are cylindrical in form, and, under the microscope, reveal transparent, membranous coverings, within which is contained the "white substance of Schwann"—(a semi-fluid, nervous matter which becomes granular by coagulation and possesses some refractive power). The axis cylinder occupies the center and is composed of matter which has a glistening appearance when exposed to reflected light. The position of this substance is analogous to that of the medulla in the bones. The investing membrane is continuous from

Fig. 54.



Division of a nerve showing portion of a nervous trunk (a) and separation of its filaments (b, c, d, e.)

the origin to the termination of the nerve-trunk. The central portion of the fibrous neurine has been proven to be the conducting medium of motory influences.

108. The ganglions are cellular globules of irregular forms and possess fibrous appendages, which serve to connect them with other cells. These ganglions form the cineritious or cortical covering of the brain, and are contained in the interior of the spinal cord. According to Kölliker, the largest of these nerve cells, measures only $\frac{1}{200}$ of an inch in diameter. The accumulations of the nervous globules which form the ganglions are termed *ganglia*. The brain is a collection of nervous ganglia.

109. Nerves are distinguished with reference to their origin, as *cerebral*—in the brain—or *spinal*—in the spinal cord. Their arrangement is either *anastomotic* or *plexiform*. In the former case several are united in a sheath—for example, in the anterior and posterior roots of the spinal nerves—, or they may form arches, as in the extremities of the fingers, and the fibres of the optic nerve. In the latter, the plexus may be either *ganglionic*, where the interchange of fibres

takes place in the cell, or *terminal*, which is formed by the interlacement of the fibres of the peripheral system.

With reference to structure, and function, nerves are distinguished as *cerebro-spinal* and *sympathetic*. There are also two classes of fibres,—the media of sensation, or *sensory* fibres—, and the instruments of power, or *motory* fibres. The latter have been termed by Morton, “the conductors of the will.” Each nerve is supplied with arteries, and their capillaries are always parallel to the fibres.

110. Nearly all the strictly scientific knowledge which we possess of the nervous system, has been obtained within the last century. In neurology, as in all sciences, there have been theories, experiments and failures. Yet there are two fundamental facts upon which all its investigators agree. (1.) The vesicular neurine is the source of nervous power, of which the fibres are the media for its transmission. (2.) The activity of the nervous system is dependent upon the rapidity of the chemical changes which take place between the oxygen of the blood and the nervous elements. A copious supply of fresh, oxygenated blood is the fountain of nervous power; hence, the necessity of pure air for all persons engaged in mental labor. It is estimated that nearly one-fifth of the blood is employed for the use and reparation of the brain. Nervous force is the product of these chemical changes. The nature of this force has been made a subject of earnest inquiry. It is analogous to electricity—but there exist as many differences as between electricity and heat—both of which may be considered as modifications of motion. The alleged similarities may be summarily stated: (1.) Not only are the nerves sensible to the electric current, but there is also an identity in their effects upon the muscular fibres. (2.) The instantaneous and invisible transmission of force. (3.) The phenomena of electric fishes, and the presence of electricity in the system during nervous action. But electricity is only one, of many physical agents which will produce the same effects, and we can attribute them to the one, as well as the other. The gymnotus and torpedo are furnished with special organs for the generation of electricity, (Brown-Sequard); and the presence of electricity in the nerve current has never been proved by experiment. Again, electricity must be transmitted through isolated

conductors; but nerves show no such conditions. If a nerve be severed and the extremities placed in opposition, the electric current will readily pass over them, while the nerve-currents will *not*. This is evident from their paralyzation. Experiments have proven that nerve force, or nervaura, or whatever we may please to term it, can have only one-tenth of the velocity of the electric current. One of the great difficulties of science is to designate imponderable agents; for, to the general reader, the terms convey an idea of *material* existence. Whenever we speak of nervous force, nerve-energy, etc., we refer to a force as immaterial and imponderable as magnetism, electricity, heat, or motion.

111. According to their collective functions, we may classify the nerves as belonging to the *sensory*, the *motory*, or the *excito-motory* systems. The minute filaments of the first class are found in every part of the cutaneous tissue, and have, for their terminus, the brain. They convey impressions from without, inward, and sustain an intimate relation to our emotional nature. The motory fibres originate in the interior centers, are distributed to every part of the cuticle, and transmit the outgoing impulse of action to the muscles. The excito-motory system comprehends all those nerve-trunks in which we find an apposition of the sensory and motory fibres:—as examples of this class, we may cite the pneumogastric and spinal accessory nerves, which both excite and transmit motory impulses. It is a remarkable fact, that the microscope does not reveal the slightest difference between the component structures of the sensory and motory filaments; but that there is one system for motion and another for sensation, is a fact, proved by experience, and sanctioned by anatomists.

CEREBRO-SPINAL SYSTEM.

112. This system is divided into the *spinal cord*, the *medulla oblongata* and the *brain*.

113. **The Spinal Cord** is a continuous series of ganglia, enveloped longitudinally by nervous filaments, and contained in a long cavity, called the “spinal canal.” From this nerve are distributed fibres and filaments to the muscles and integument, of at least nine-tenths of the body. Careful experiments have proved that sensation and motion occupy special parts; but in

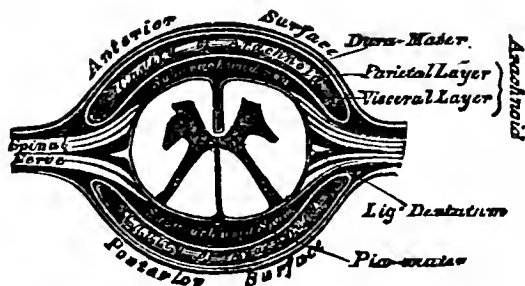
many of the nerves they are so intimately connected that an injury or bruise destroys both powers simultaneously. In the spinal cord the phenomena are different. If the anterior roots be subjected to experiment, there will result convulsive movements, but no evidence of sensation; if the irritant be applied to the posterior root, the subject will experience acute pain but no motion.

114. With regard to the mode of action of the spinal cord, we may enumerate three demonstrable facts, stated by Dr. Dalton:—(1.) “An irritation applied to a spinal nerve, at the middle of its course, produces the same effect as if the sensation, thus caused, traversed its entire length.” (2.) “An irritation of the motory filaments disappears from within, outward, that of the sensitive filament, from without, inward.” (3.) “Each nervous filament acts independently of the rest throughout its entire length, and does not communicate its irritation to those which are in proximity with it.” We have *associated sensations*, as when the sight of a luscious peach, or any favorite fruit, excites the sensation of taste,—and also *associated movements*, the most perfect illustration of which is in the consensual movements of the eyes, termed binocular vision. The anterior and posterior roots of the spinal nerves differ in their mode of transmitting the nervous current, and able experimenters have proved that in the anterior roots the impulse is conveyed from within, outward, and in the posterior, from without, inward. The same mode of afferent and efferent action is found to exist in the cord itself.

115. The external membrane of the spinal cord has a fibrous, opaque structure, and is termed the *dura mater*. It consists of two laminae of cellular tissue, and forms a sheath for the spinal nerves. Before removal by dissection, it is much larger than the cord. The *tunica arachnoidæ* is a transparent tissue which envelops the brain, and is reflected over the *dura mater*, thus forming a sac. The *pia mater* is a soft membrane of slight vascularity, and lies in intimate contact with the cord itself. The *ligamentum denticulatum* derives its name from its use and structure. It supports the three membranes, and is attached to the *pia mater* by twenty or more processes. Two longitudinal fissures divide the cord into lateral halves, while two furrows subdivide these halves, and traverse the entire length. For a cross-section of the spinal cord, see Fig. 55. Dissection shows it

to be composed of vesicular neurine, with an external covering of fibrous tissue. The spinal cord has been termed an "inverted brain." It is

Fig. 55.



Transverse section of spinal cord.

problematically true that, if all the gray matter of the nerves could be collected, it might equal, if not exceed in quantity, that contained in the brain. Thirty-one spinal nerves are distributed

to the bodily organs. Eight of these are termed Cervical, twelve Dorsal, five Lumbar, and six Sacral, according to the portion of the cord from which they proceed.

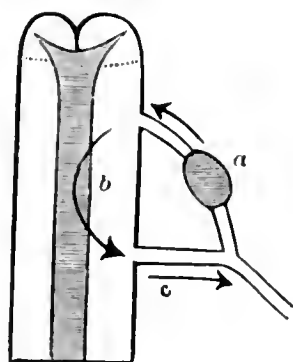
The filaments, or branches of the spinal nerve, penetrate every particle of the cutis vera. The contact of the point of a pin with any portion of the bodily surface, gives rise to a distinct sensation, which, reflected as a motor impulse, stimulates the muscles to action. Injury or destruction of the spinal nerves produces either *paralysis of sensation*, *paralysis of motion*, or both. If a spinal nerve be severed at any part of its course, it will ultimately unite if placed in contact, and sensation will be restored. The posterior roots, at their junction with the cord, are distinguished from the anterior, by the presence of a gray ganglion or swelling of vesicular neurine. See (a), Fig. 56.

REFLEX ACTION OF THE SPINAL CORD.

116. The Spinal cord may be considered as a distinct nervous center, in which originate and terminate all those involuntary stimuli that exert so potent an influence in the preservation and economy of the body. This reflex action is a special function of the spinal nerves, and serves as a monitor and regulator of the organs of nutrition and circulation, by placing them, ordinarily, beyond the control of conscious volition. If the foot of a decapitated frog be irritated, there is an instant contraction of the corresponding limb; if the irritation be intense the other limb will also contract. These motions indicate the existence, in some part of the spinal axis, of a distinct, nervous center capable of converting and reflecting impulses. It is found, by experiment,

that the same movements will take place if the irritation be applied to any portion of the body to which the spinal nerves are distributed, thus giving undoubted evidence that the spinal cord, in its entirety, is susceptible of these reflexions. Fig. 56 represents the direction and flow of the nervous currents. The

Fig. 56.



sensory current passes upward along the posterior root, (a) until it reaches the imbedded gray matter (b) of the cord, by which it is reflected, as a motor impulse, downward, along the anterior root, (c) to the muscles whence the sensation was received. This is the *reflex action of the spinal cord*. There is no conscious volition or sensation connected with this motor impulse; and the removal of the brain and the sympathetic does not diminish its activity.

Even after death it continues for some time—longer in cold, than warm-blooded animals, on account of the difference in temperature—thus showing the activity of the spinal cord. By disease, or the use of certain poisons, this activity may be greatly augmented, and is very distinctly observable in the human subject. A sudden contact with a different atmosphere will induce these movements. The contraction of muscles experienced by all persons, in stepping into a cold bath, or emerging from the cozy sitting-room into a chilly December temperature, are familiar illustrations of these movements. The existence of these actions has enabled M. Bernard, a distinguished physiologist, to demonstrate two important facts, viz: that the irritability of the muscles may be injured or destroyed, while that of the nerves distributed to them, remains unchanged; and that the motory and sensory filaments may be paralyzed independently of each other.

117. The reflex actions of the spinal cord have been admirably summarized by Dr. Dalton, as exerting a general, protective influence over the body, presiding over the involuntary action of the limbs and trunk, regulating the action of the sphincters, rectum and bladder, and at the same time exercising an indirect influence upon the nutritive changes in all parts of the body, to which the spinal filaments are distributed.

To the researches of Sir Charles Bell, we are indebted for the discovery and proof of the reflex actions of the nervous system, which, taken collectively, exercise a conservative influence over the animal economy.

118. **The Medulla Oblongata.** This organ is a bulbous ganglion, situated above the spinal cord and connected with the brain. It has distinct functions which are employed in the preservation and continuance of life. It has been termed the "vital knot," owing to the fact, that the brain may be removed and the cord injured, but the heart and lungs will continue to perform their functions, until the medulla oblongata is destroyed. This ganglion, although small, possesses such a sway over life, that the author has deemed it of sufficient importance to accord it a separate consideration. The spinal nerves, before entering this ganglion, decussate. By some authors this crossing of the sensory and motory filaments is supposed to take place near the medulla oblongata. Dr. Brown-Sequard shows that it takes place at every part of the spinal cord. The medulla oblongata is

Fig. 57.

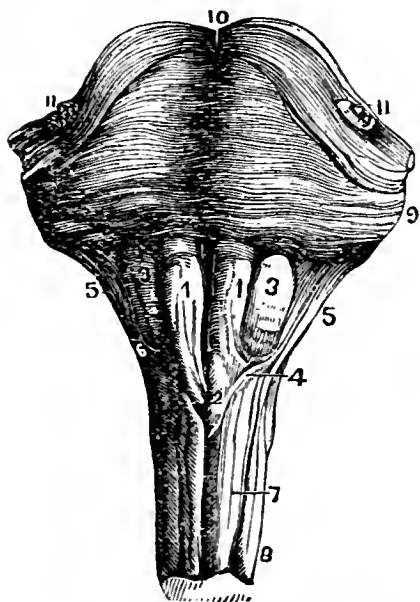
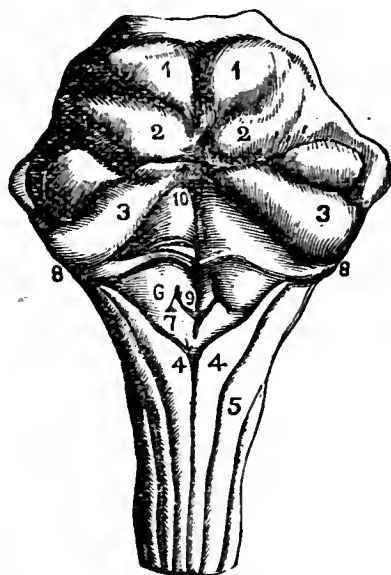


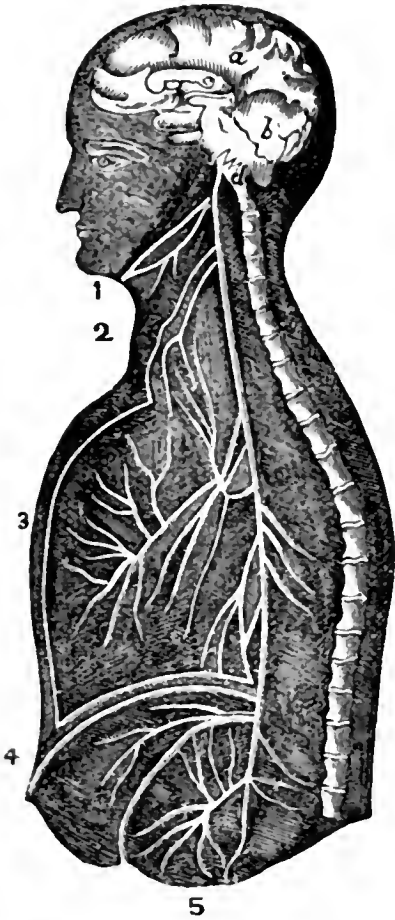
Fig. 58.



traversed by a longitudinal fissure, continuous with that of the spinal cord. Each of the lateral columns thus formed are subdivided into partitions termed respectively,—the Corpora Pyramidalia, the Corpora Olivaria, the Corpora Restiformia and the Posterior Pyramids.

119. The *Corpora Pyramidalia* (see 1, 1, Fig. 57.) are two small medullary eminences or cords, situated at the occipital surface of the medulla oblongata; approaching the Pons Varolii they become larger and rounded.

Fig. 59.



Section of the brain and an ideal view of the pneumogastric nerve and its branches. *a.* Vertical section of the cerebrum. *b.* Section of the cerebellum. *c.* Corpus callosum. *d.* Lower section of medulla oblongata. Above *d.* origin of the pneumogastric nerve. 1. Pharyngeal branch. 2. Superior laryngeal. 3. Branches to the lungs. 4. Branches to the liver. 5. Branches to the stomach.

The *Corpora Olivaria* (3, 3, Fig. 57.) are two elliptical prominences, placed exterior to the corpora pyramidalia. By some physiologists these bodies are considered as the nuclei, or vital points of the medulla oblongata. Being closely connected with the nerves of special sensation, Dr. Solly supposed that they presided over the movements of the larynx.

The *Corpora Restiformia* (5, 5, Fig. 58.) are lateral and posterior rounded projections of whitish medulla, which pass upward to the cerebellum and form the *crura cerebelli*—so named on account of their leg like appearance. In these ganglia originate and terminate the filaments of the pneumogastric nerve.

The *Posterior Pyramids*, which are sometimes termed *fasciculi graciles* (slender bundles), are much smaller than the other columns of the medulla oblongata. They are placed (4, 4, Fig. 58.) upon the margin of the posterior fissures in contact with each other.

120. The functions of the medulla oblongata, which begin with the earliest manifestations of life, have an instinctive character. The newly born infant, when placed at its mother's breast, acts from the motor impulse of this organ and performs all the movements necessary for appropriating its food. If the cerebellum and cerebrum of a dove be

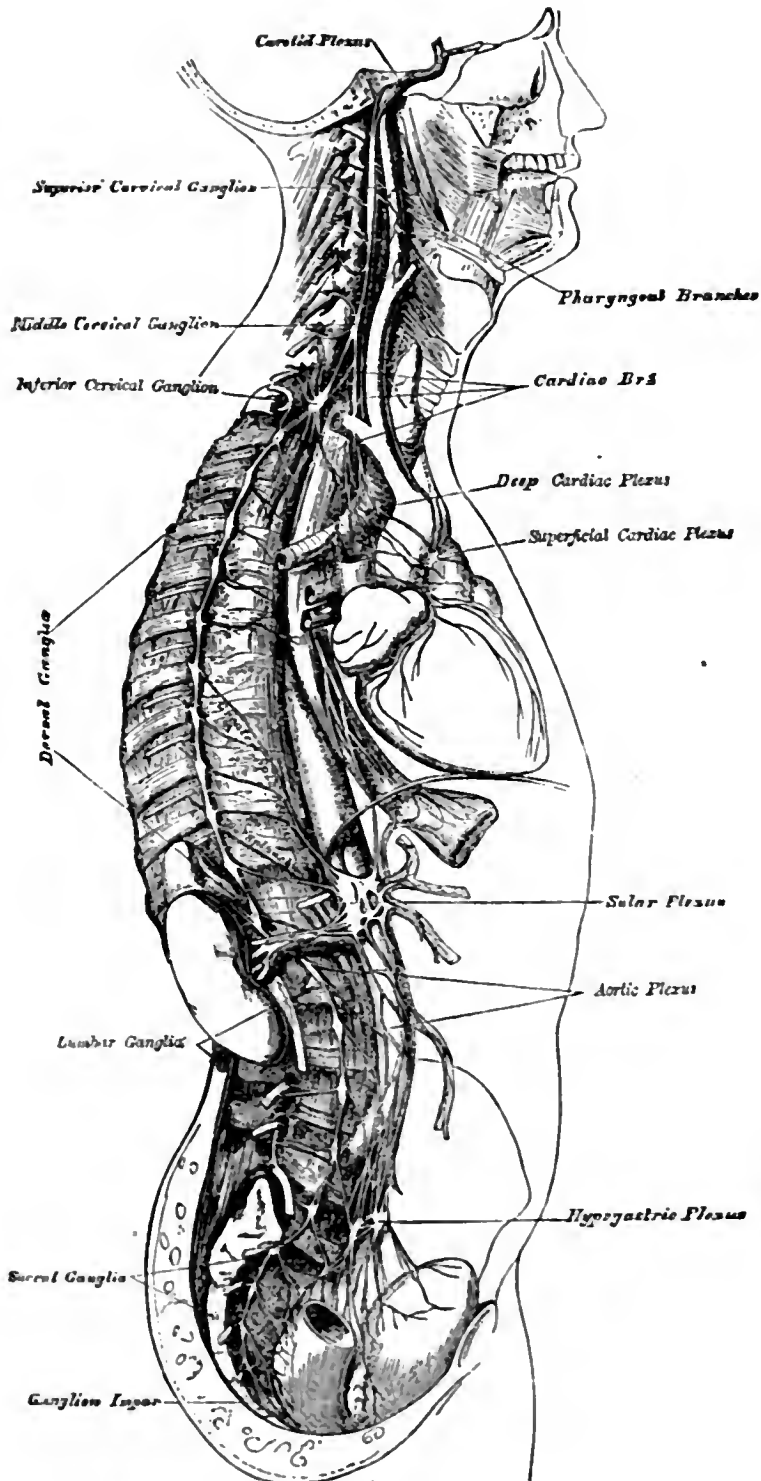
removed, the bird will make no effort to procure food, but if a crumb of bread be placed in its bill, deglutition takes place naturally and without any special effort. So also in respiration, the lungs continue to act after the inter-costal muscles are paralyzed; if the diaphragm lose its power, suffocation is the result, but there will still be a convulsive movement of the lungs, indicating the continued action of the medulla oblongata.

121. The *Pneumogastric* nerve (from the wandering course of its fibres, often called the *par vagum*), is distributed to the principal vital organs, viz: lungs, heart, stomach and liver. At the corpora restiformia it is exclusively a sensitive nerve. After passing downward through the *posterior foramen lacerum*, it becomes a mixed nerve, and is intimately associated with the spinal accessories and glosso-pharyngeal nerves (see Fig. 59 and explanation). The respiratory movements of the glottis so essential to the preservation of life are controlled by the impulses received through the motor filaments of this nerve.

THE GREAT SYMPATHETIC.

122. A double chain of nervous ganglia, extends from the anterior, to the posterior parts of the body, parallel to, and in front of the spinal column, and is termed, collectively, the system of the great sympathetic. These ganglia are intimately connected by nervous filaments and communicate with the cerebro-spinal system by means of the motory and sensory filaments which penetrate the sympathetic. The nerves of this system are distributed to those organs over which conscious volition has no direct control.

123. Four of the sympathetic centers, situated in the front and lower portions of the head, are designated as the *ophthalmic*, *spheno-palatine*, *submaxillary* and *otic* ganglia. The first of these, as its name indicates; is distributed to the eye, penetrates the sclerotic (the white, opaque portion of the eyeball, with its transparent covering) and partly controls the contraction and dilation of the iris. The second division is situated in the angle formed by the sphenoid and maxillary bone (just below the ear). It sends motory and sensory filaments to the palate, and *velum palati*. Its filaments penetrate the carotid plexus, receive reinforcements from the motor centers of the facial nerve and the

Fig. 60.

Course and distribution of the great Sympathetic Nerve.

sensory fibres of the superior maxillary. The third division is located on the submaxillary gland. Its filaments are distributed to the sides of the tongue, the sublingual, and submaxillary glands. The otic ganglion is placed below the base of the skull and also connects with the *carotid plexus*. Its filaments of distribution supply the internal muscles of the malleus (the largest bone of the tympanum), the membranous linings of the tympanum and the eustachian tube. Three ganglia, usually designated as the superior, middle, and inferior, connect with the cervical, and spinal nerves. Their interlacing filaments are distributed to the muscular walls of the larynx, pharynx, trachea and esophagus, and also penetrate the thyroid gland.

Observation 1st. The use of this gland is not accurately known. It is composed of a soft, brown tissue, and consists of lobules contained in lobes of larger size. It forms a spongy covering for the greater portion of the larynx, and the first section of the trachea. That it is an important organ, is evident from the fact that it receives four large arteries, and filaments from two pairs of nerves.

Observation 2d. In tracheal consumption, physicians often press upon the cervical vertebræ, and in front of the mastoid process, to ascertain the degree of sensibility of the branches of the otic nerve. By this means they are enabled to locate the affection and distinguish it from bronchial consumption.

124. The sympathetic ganglia of the chest correspond in number to the terminations of the ribs, over which they are situated. Each of these ganglia receives two filaments from the intercostal nerve, situated above it, thus forming a double connection. The thoracic ganglia supply the thoracic aorta, esophagus and lungs with motory fibres.

In the abdomen the sympathetic centers are situated upon the cœliac artery and are termed, collectively, the semi-lunar cœliac ganglion. Numerous inosculating branches radiate from this center and are called, from the method of their distribution, the "solar plexus." From this, also, originate other plexuses which are distributed to the stomach, liver, kidneys, intestines, spleen, pancreas, renal capsules and the organs of generation. Four other pairs of abdominal ganglia, connected with the lumbar branches are united by filaments to form the semi-lunar ganglion.

The sympathetic ganglia of the pelvis consist of five pairs, which are situated upon the surface of the sacrum (so called because it protects the genital organs, which were deemed sacred by the ancients). At the extremity of the spinal column this system terminates in a single swelling, designated as the "ganglion impar."

125. Owing to the position of the sympathetic ganglia, deeply imbedded in the tissues of the chest and abdomen, it is exceedingly difficult to subject them to any satisfactory experiments. A few isolated facts form the basis of all our knowledge concerning their functions. They possess the powers of sensibility and motion, only are more sluggish in their operations than in the cerebro-spinal system. All parts, to which their branches are distributed, furnish evidence of this statement. The contraction of the *iris* is one of the most prominent examples; we may also cite the sympathetic action of the internal organs of the abdomen.

126. In all the reflex actions of the *special* nerves, the sensation is transmitted through the cerebro-spinal system, from which the motor impulse is sent to the muscles by the sympathetic ganglia. Physiologists enumerate three kinds of reflex actions, which are either purely sympathetic, or partially influenced by the cerebro-spinal system. Dr. Dalton states them as follows:

"The first class includes all those reflex actions in which the irritation is applied to the internal organs, and the impulse passes through the sympathetic and cerebro-spinal system, to the voluntary muscles and sensitive surfaces."

Secondly, "Reflex actions taking place from the sensitive surfaces through the cerebro-spinal and sympathetic systems, to the involuntary muscles and secreting organs." Apprehension, terror, and a narrative of crime will operate through the organs of fear, and thus indirectly, speedily, and sometimes dangerously, affect the processes of digestion and secretion. Fear causes the mouth to become dry—the salivary glands cease their action and after the occurrence the victim has no desire for food, a condition popularly termed "loss of appetite;" but the real cause is that the organs of digestion are temporarily paralyzed and unprepared to receive the food. Upon this fact is founded one of the axiomatic laws of health, viz: that during the process of digestion the mind should be free from all depressing influences. Ill temper may

effectually destroy all the healthful tendencies of a robust organization, while cheerfulness, on the contrary, is one of the most efficient remedies for human ills. And this illustrates the fact that fear, when abnormally excited, produces those irritations and disturbances, which develop chronic diseases. Its depressing influence is well known in cholera epidemics. The bowels, being paralyzed, are uncontrolled and pour out their contents until collapse and complete coma supervene.

127. "The third class embraces all those reflex actions taking place through the sympathetic system from one part of the internal organs to another." We may mention the movements of the digestive apparatus, occasioned by the contact of food with its lining membrane. The reader may supply many similar illustrations, where the functions of one organ act as an excitant to those of another, which, in turn, instinctively prepares for the discharge of its duties.

From this brief synopsis we cannot fail to recognize the fact, that by far the greater portion of the vital power, which preserves and ensures life, lies entirely beyond the realm of volition.

128. **The Brain.** The *Cerebellum*, or little brain, is situated beneath the tentorium (a tent-like process of the dura mater which separates it from the cerebrum), and in the posterior chamber of the skull. It is convex, with a transverse diameter of three and one-half, or four inches, and is a little more than two inches in thickness. It is divided into hemispheres by a longitudinal ridge, termed the *superior vermiform* process, and by a fissure, parallel with the first, below and behind. Another longitudinal ridge observed in this groove, or sulcus is termed the *vermis inferior*. The substance included between these vermiform processes was termed, by Gall and Spurzheim, the "fundamental portion." When carefully examined the cerebellum is found to consist of delicately laminated neurine, compactly arranged, but separated by the *pia mater*. A horizontal fissure passes around each hemisphere, and divides it into two parts. This, in turn, gives rise to other furrows, running in almost every direction. The vesicular neurine composes the greater part of the cerebellum. From the beautiful arrangement of the fibrous tissue, it has been termed the "*arbor vitæ*." The *ganglion of the cerebellum* is an irregular mass of cineritious matter, contained within the

trunk of this imaginary tree; within the ganglion is the nucleus of the medullary substances.

129. The *Peduncles of the Cerebellum*, or the media by which it communicates with the other portions of the brain, are divided into three pairs, designated as the superior, middle, and inferior. The first, pass upward and forward until they are blended with the tubercles of the *corpora quadrigemina*. The second, are the *crura cerebelli* which unite in two large fasciculi or pyramids, and are finally lost in the Pons Varolii. The inferior peduncles are the *corpora restiformia*, previously described, and consist of both sensory and motory filaments. Some physiologists suppose that the cerebellum is the source of that harmony or associative power, which systematizes all voluntary movements, and effects that delicate proportion of cause to effect, displayed in muscular action. This fact may be proved, experimentally, by removing the cerebellum of a bird, and noting the results, which are an uncertainty in all its movements, difficulty in standing or walking, and a rapid, or confused fluttering of its wings. In the animal kingdom we find an evident correspondence between the size of the cerebellum, and the variety and extent of its action. Instances are cited in which no such proportion exists, and so the matter is open to controversy. The general function of the cerebellum, therefore, cannot be explained, but the latest experiments of physiological and anatomical science seem to favor the theory, that it is in some way connected with the harmony of movements. This "co-ordination," by which the adjustment of voluntary motion is supposed to be effected, is not in reality a "*faculty*" having an existence in brain substance, but the harmonious action of many forces through the cerebellum.

130. The *Cerebrum* occupies five times the space of all the other portions of the brain taken collectively. It is of an ovoid form, and becomes larger as it approaches the posterior region of the skull. A longitudinal fissure formed by the dura mater separates the cerebrum into two hemispheres, which are connected at the base of the fissure, by a broad medullary band, termed the *corpus callosum*. Each hemisphere is subdivided into three lobes. The anterior, gives form to the forehead, the middle, rests in the cavity at the base of the skull, and the posterior lobe is supported by the tentorium, by which it is separated from the cerebellum

beneath. One of the most prominent characteristics of the cerebrum is its many, and varied *convolutions*. These do not correspond in all brains, nor even on the opposite sides of the same brain, yet there are certain features of similitude to which all conform; accordingly, anatomists enumerate four *orders of convolutions*. The first order begins at the *substantia perforata* and passes upward and around the corpus callosum toward the posterior margin of that body, thence descends to the base of the brain, and terminates near its origin. The second order originates from the first, and subdivides into two convolutions, one of which composes the exterior margin and superior part of the corresponding hemisphere, while the other forms the circumference of the fissure of Sylvius. The third order, from six to eight in number, is found in the interior portion of the brain and inosculates between the first, and second orders. The fourth, is found on the outer surface of the hemisphere, in the space between the sub-orders of the second class. A peculiar fact relating to these convolutions is noticed by all anatomists, viz: mental development is always accompanied by an increasing dissimilarity between their proportional size. The cineritious matter, which forms their external covering, is termed by Solly, the "hemispherical ganglion." The encephalic nerves are twelve in number. The cerebral hemispheres may be injured, or lacerated without any pain to the patient. The effect seems to be one of stupefaction without sensation, or volitional impulse. A well developed brain is a very good indication of intelligence and mental activity. That the cerebrum is the seat of the reasoning powers, and all the higher processes of intellection may be proved by three experiments. (1.) If this portion of the brain be removed, it is accompanied by loss of intelligence. (2.) If the human cerebrum be injured, there is an impairment of these powers. (3.) In the animal kingdom there is a gradual increase in the size of the cerebrum, corresponding in each instance to a gradual increase of intellectuality. One modification of this general law of development, is the differences in the cerebral texture. Men possessing comparatively small brains, may have a vast range of thought and acute reasoning powers. Anatomists have found these peculiarities to depend upon the quality, or fineness of the texture of the nervous matter, as well as upon size and development.

131. In the cerebro-spinal system we have discovered three different kinds of reflex actions. (1.) Those of the spinal cord and medulla oblongata are performed without any conscious volition, or sensation on the part of the subject. (2.) The second class embraces those of the tuber annulare, where the perception gives rise to motion without the interference of the intellectual faculties. These are denominated purely *instinctive* reflex actions, and include all those operations of animals, which seem to display intelligent forethought; thus, the beaver builds his habitation over the water, but not a single apartment is different from the beaver homestead of a thousand years ago,—no improvement, —no retrograde. The intelligent trains of thought, the product of cerebral functions, have been termed a third class of reflex actions. It is evident that this power is, in a degree, possessed by some of the lower animals:—for instance, a tribe of monkeys on a foraging expedition will station guards at different parts of the field, to warn the plunderers of the approach of danger. A cry from the sentinel, and general confusion is followed by retreat. Reason only attains its highest development in man, in whom it passes the bounds of ordinary existence, and with the magic wand of love, reaches outward into the vast unknown, lifting him above corporeal being, into an atmosphere of spiritual and divine Truth.

CHAPTER XIII.

THE SPECIAL SENSES.

SIGHT.

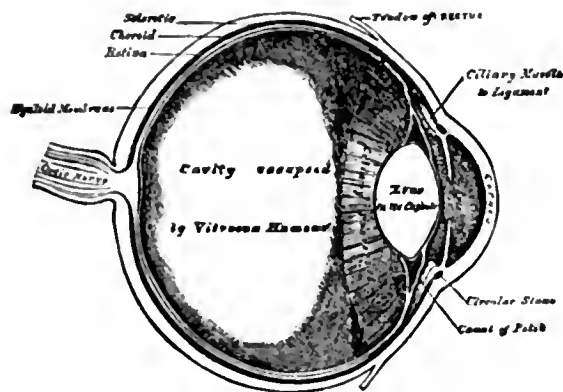
132. The eye is the organ through which we perceive, by the agency of light, all the varied dimensions, relations, positions, and visible qualities of external objects. It receives outward impressions, and, in man, reflects all the thoughts, ideas and passions, which, in their aggregate, form the sum total of individuality and individual experience.

133. The number, position, and perfection of the eyes, vary in different orders, in each instance corresponding to the mode of life, habitation and food of the animal. A skillful optician can ascertain by the peculiar formation of the eye—with no reference to the general physical structure—in what element the animal lives. Sight is the most perfect of the senses, and reveals to man the world of beauty. The esthetic sentiment is acknowledged to be the most refining element of civilized life. Painting, sculpture, architecture, and all the scenes of nature,—from a tiny wayside flower to a Niagara,—are subjects in which the poets' eye sees rich beauties to mirror forth in the rhythm of verse.

134. In all the higher orders of animals, as the vertebrates, the organs of vision are supplied with filaments from the second pair of cerebral nerves. They are collectively, termed the *optic* nerve. In this class, the eyes are limited to two in number, and placed in rounded cavities of the skull, beneath the anterior lobes of the cerebrum. Three membranes form the lining of this

inner sphere of the eye, called, respectively, the Sclerotic, Choroid and Retina.

Fig. 61.



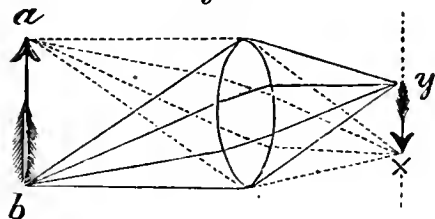
135. The *Sclerotic*, or outer covering, is the white, firm membrane, which forms the larger visible portion of the eyeball. It is covered in front by a colorless, transparent segment,—the *cornea*,—which gives to the eye its lustrous appearance. Within the sclerotic, and lining it

throughout, is a thin, dark membrane termed the *Choroid*. Behind the cornea it forms a curtain, called the *iris*, which gives to the eye its color. The muscles of the iris can contract or dilate according to the amount of light received, and the central opening, thus formed, is called the *pupil*. The *Retina*, is formed by the optic nerve which penetrates the sclerotic and choroid and spreads out into a delicate, grayish, semi-transparent membrane. The retina is the *essential* organ of vision, and consists of two laminae, the one formed of medulla, the other, of fibro-vascular neurine. A spheroidal, transparent body, termed the *crystalline lens*, is situated directly behind the pupil. It is of varying density, increasing from without, inward, and forms a perfect refractor of the light received. The space in front of the crystalline lens is separated by means of the iris into two compartments called, respectively, the *anterior* and *posterior chambers*. The fluid contained within them, termed the *aqueous humour*, is secreted by the cornea, iris and ciliary processes. The space, posterior to the crystalline lens, is occupied by the vitreous body or humour. This humour is denser than the other fluids and has the consistency of jelly, being perfectly transparent. “The function of the crystalline lens is to produce distinct perception of form and outline.”* The transparent humours of the eye also contribute to the same effect, but only act as auxiliaries to the lens, without

* Dalton—Human Physiology, last edition.

which our visual impressions would be of confused, formless luminosity.

Fig. 62.



136. The accompanying figure represents the course of the rays of light proceeding from the object (*a b*) refracted by the lens, and forming the inverted image *x y* on the screen. All rays of light proceeding from *b* will be concentrated to *y*, and those proceeding from *a* will converge to *x*. Rays of light emanating from the center of the object *a b* will pursue a parallel course, and form the center of the image. Rays of light passing through a double convex lens (the crystalline lens is of this form) converge to a point called the *focus*. In the organ of vision, if perfect, the focus is on the retina, which serves as a screen to receive the image or impression. Here the optician meets with a serious difficulty. We have a distinct perception of the outline of a distant hill, and also of a book lying before us. The rays of light we receive from these objects, cannot have the same focus. How then can we account for the evident accommodation of the eye to the varying distances? Various suppositions have been advanced to explain this adjustment; as, changes in the curvature of the cornea, and lens; a movement of the lens, or, a general change in the form of the eyeball, by which the axis may be lengthened or shortened.

137. Two facts constitute all the positive knowledge we possess on this subject. Every person is conscious of a muscular effort in directing the eye to a near object, as a book, and of fatigue, if the attention is prolonged. If now the eyes be directed to a distant object, there will result a sense of rest or passivity. By various experiments it has been proved that the accommodation or adjustment of the eye, is an active condition for near objects, but for distant objects, essentially passive. An increase in the convexity of the crystalline lens, is now admitted to be the condition for a distinct perception of near objects. We may give two simple illustrations, cited by Dr. Dalton in his recent edition of *Human Physiology*. If a candle be held near the front of an eye which is directed to a distant object, three reflected images of the flame will be seen in the eye, one on each of the anterior

surfaces of the cornea and lens, and a third in the posterior surface of the latter. Now if the eye be directed to a near object, the reflection on the cornea remains unchanged, while that on the anterior surface of the lens gradually diminishes and approximates in size to the reflection on the cornea, thus giving conclusive evidence that in viewing a near object, the anterior surface of the crystalline lens, becomes *more convex*, and at the same time approaches the cornea. Five or six inches is the minimum limit of the muscular adjustment of the eye. From that point to all the boundless regions of space, to every star and nebulae that send their rays to our planet, human vision can reach. It is the sense by which we receive knowledge of the myriads of worlds and suns which circle with unfailing precision through infinite space

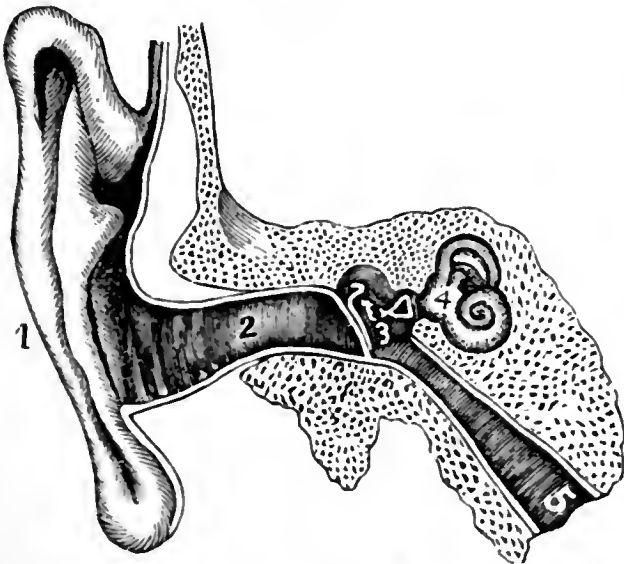
HEARING.

138. Hearing depends upon the sonorous vibrations of the atmosphere. The waves of sound strike the sensitive portions of the ear, and their impressions upon the auditory nerves are termed

the sensations of hearing. The ear is divided into three parts called, respectively, the External, Middle and Internal ear.

139. The external organs of hearing are two for each animal, and placed on opposite sides of the head. In the higher order of vertebrates, they are so situated as to give expression and proportion to the facial organs, and, at the same time, to

Fig. 63.



Internal and external ear. 1. External ear. 2. Internal auditory meatus. 3. Tympanum. 4. Labyrinth. 5. Eustachian tube.

answer the requirements of sensuous life.

140. The *External ear* is connected with the interior apartments, by a prolongation of its orifice termed the *external*

auditory meatus. In man, this half-bony portion of the auditory apparatus is about one inch in length, lined by a continuation of the integument of the ear, and has numerous hairs on its surface to prevent the intrusion of foreign substances. Between the external meatus, and the cavity of the middle ear is the *membrana tympani*, which is stretched across the opening like the head of a drum. The *tympanum* communicates with the pharynx by the *eustachian* tube, which is a narrow passage lined with delicate, ciliated epithelium. On the posterior portion it is connected with the mastoid cells. Three small bones are stretched across the cavity of the tympanum, and called from their forms, the *malleus*, *incus* and *stapes*. Agassiz mentions a fourth, which he terms the *os obiculare*. Each wave of sound falling upon the *membrana tympani*, throws its molecules into vibrations and is communicated to the chain of bones, which, in turn, impart it to the membrane of the *foramen ovale*. The three muscles which regulate the tension of these membranes are termed the *tensor tympani*, *laxator tympani*, *stapedium tympani*.

141. The *Labyrinth*, or *Internal ear*, is a complicated cavity, consisting of three portions termed the *vestibule*, *cochlea*, and *semi-circular canals*. The vestibule is the central portion and communicates with the other divisions. The labyrinth is filled with a transparent fluid termed *perilymph* in which are suspended, in the vestibules and canals, small membranous sacs, containing a fluid substance termed *endolymph* (sometimes called *vitrine auditive* from its resemblance to the vitreous humour of the eye). The filaments of the auditory nerve penetrate the membranous tissues of these sacs and also of those suspended at the commencement of the semi-circular canals. These little sacs are the seat of hearing, and determine in some mysterious manner the quality, intensity and pitch of sounds.

142. The determination of the *direction* of sound is a problem of acoustics. Some have contended that the arrangement of the semi-circular canals is in some way connected with this sensation. But this supposition, together with the theory of the transmission of sound through the various portions of the cranial bones, is exploded.

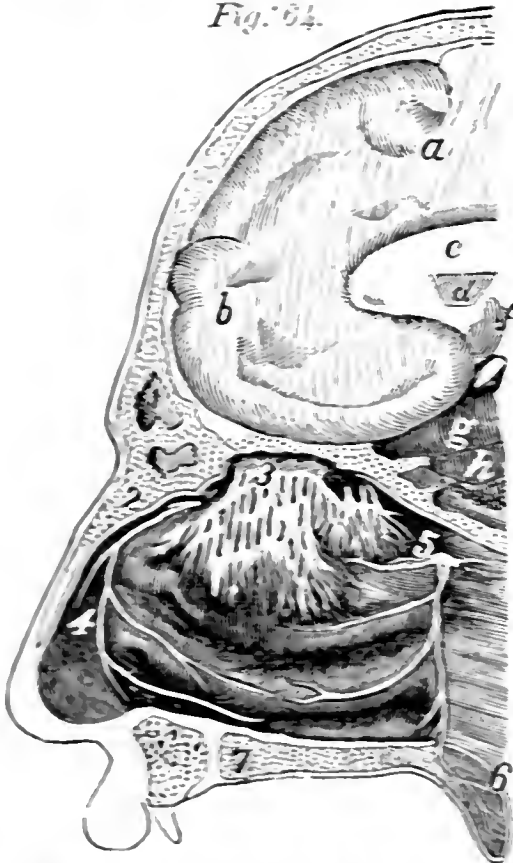
143. From the foregoing description, it will be seen that the labyrinth and tympanum are the essential organs of hearing.

In delicacy, refinement and spirituality this sense ranks next to sight. The emotions of beauty and sublimity, excited by the warbling of birds and the roll of thunder, are scarcely distinguishable from the intense emotions arising from sight. It is a remarkable fact, that the refinement, or cultivation of these senses is always found associated. Those nations that furnish the best artists, or have the highest appreciation of painting and sculpture, produce the skillful musicians—who reduce music to a science, the laws of which are the emotions and passions of the human soul.

SMELL.

144. Next in order of delicacy and more closely allied with

Fig. 64.



Illustrates the distribution of nerves to the nasal passage. 1. Frontal sinus. 2. Nasal bone. 3. Olfactory ganglion and nerves. 4. Nasal branch of the fifth pair. 5. Sphenopalatine ganglion. 6. Soft palate. 7. Hard palate. Likewise it illustrates a portion of the brain. a. Cerebrum. b. Anterior lobes corresponding to the intellectual faculties. c. Corpus callosum. d. Septum lucidum. e. Fornix. f. Thalami optici. g. Corpora striata.

the psychical functions, is the sense of smell. Delicate perfumes, or the fragrance of a flower, impart an exhilarating sensation of *bien être*, while nauseous odors excite a feeling of disgust. In complication of structure, the organ of smell is far inferior to the eye and ear. It consists of two cavities having cartilaginous walls, and lined with a thick mucous membrane, termed the *pituitary* membrane, over which are reflected the olfactory nerves. Particles of matter, too minute to be seen through the microscope, are detached from the odorous body and come in contact with the nerves of smell, which transmit the impression, thus received, to the brain. For distribution of nerves in the nasal passages, (see Fig. 64). The nose is

supplied with two kinds of filaments which are termed, respectively, nerves of special, and nerves of general sensation. Compared with the lower animals, especially those belonging to the carnivorous species, the sense of smell in man is feeble. The sensation of smell is especially connected with the pleasures and necessities of animal life.

TASTE.

145. The sense of taste is directly connected with the preservation and nutrition of the body. A delicious flavor produces a desire for the savored substance, as food. Some writers on hygiene, have given this sense an instinctive character, by assuming that all articles, having an agreeable taste, are suitable for diet. Dr. Dalton defines the organ of taste to be "a mucous membrane beset with vascular, and nervous papillæ similar to those of the general integument." He localizes the sense of taste in "the mucous membrane of the tongue, palate and fauces." The nerves of taste are distributed over these surfaces, and their minute extremities terminate in well developed *papillæ*. These *papillæ* are divided into three classes, termed, from their microscopic appearance, *filiform*, *fungiform* and *circumvallate*.

146. The conditions necessary to taste are, (1), that the substance be in solution either by artificial means, or, the action of the saliva; (2), that it be brought in contact with the sensitive filaments, imbedded in the mucous membrane. The nerves of taste are both *general* and *special* in their functions. If the general sensibility of the nerves of taste be unduly excited, the function of special sensibility is lost for some time. If a peppermint lozenge be taken into the mouth, it strongly excites the general sensibilities of taste, and the power of distinguishing between special flavors is lost for a few moments. A nauseous drug may then be swallowed without experiencing any disagreeable taste.

147. Paralysis of the facial nerve produces a marked effect in the sensibility of the tongue. Wherein this influences life, is not fully explained; probably it is indirect, producing some alteration in the vascularity of the parts, or a diminution of the salivary secretions.

TOUCH.

148. By the sense of touch we mean the *general sensibility of the skin*. Sensations of heat and cold are familiar illustrations of this faculty. By the sense of touch we obtain a knowledge of the essential qualities of a body such as form, consistency, a rough or smooth surface, etc. The tip of the tongue (according to Dr. Dalton) possesses the most acute sensibility of any portion of the body and next in order are the tips of the fingers. The hands are the principal organs of tactile sensation. The nerves of general sensibility are distributed to every part of the cutaneous tissue. The contact of a foreign body with the back, will produce the same *tactile* sensation, as with the tips of the fingers. The sensation may differ in *degree* on account of an unequal development of the nervous filaments; in *quality* it is the same.

CHAPTER XIV.

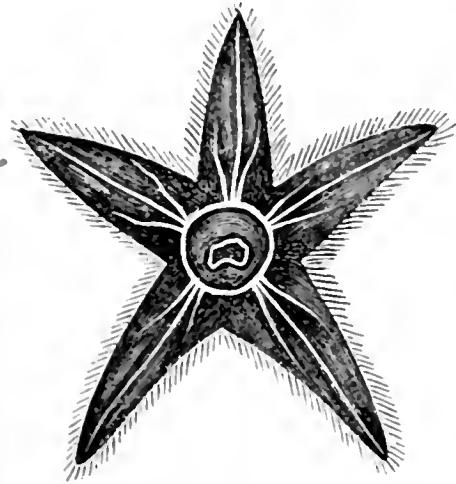
CEREBRAL PHYSIOLOGY.

149. By means of the nervous system, an intimate relation is sustained between mind and body, for nervous energy superintends the functions of both. The interpenetrating fibres of nervous matter are universally present in the organization to unite the physical and spiritual elements of man's constitution. Even the minutest nerve-rootlets convey impressions to the dome of thought and influence the process of Intellection. We recognize *muscular* force—the momentum of the body, *molecular* force—molecules in motion, as heat, light, chemical force, electricity, and *nervous* force—a certain influence which reacts between the animal processes and the cerebrum, thus connecting the conditions of the body with those of the mind. We cannot speak of the effects of mind or body, separately, but we may consider their action and reaction upon each other, for they are always associated. There are many difficulties attending this relationship, some of which may be obviated by considering the development of nervous matter and its functions in the lower orders of organization.

150. Within the plant-cells is found a vital, vegetable substance termed protoplasm, which exerts the same nutritive power as the tissues of the polyp and jelly fish. Many families of animals present an appearance of pulp, have slight instinctive motion and sensibility, and according as the nervous system is developed, both of these powers are unfolded. Plants have a low degree of sensibility, limited motion, respiratory and circulatory organs. Animals possess quicker perceptions and sensibilities, the power of voluntary motion, and likewise a rudimental nervous system. Some articulates have no skeleton, their muscles being

attached to the skin which constitutes a soft contracting envelope. One of the simplest forms of animal life in which a nervous system is found, is the five-rayed star-fish. In each ray or arm there are

Fig. 65.

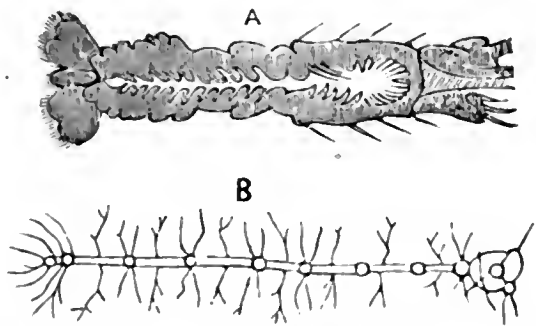


filaments which connect with similar nerves, and form a circle around the digestive cavity. It probably has no conscious perception and its movements do not necessarily indicate sensation or volition. In some worms a rudimentary nervous system is sparingly distributed to the cavities of the thorax and abdomen, and, as in the star-fish, the largest nerve-filament is found around the esophagus, presiding like a goddess over nutrition.

151. A higher grade of organization requires a more complete arrangement of nervous substance. Stimulus applied to one organ is readily communicated to, and excites activity in another.

The nervous system of some insects consists of two, long, white cords, which run longitudinally through the abdomen and are dilated at intervals into knots, consisting of a collection of nerve-cells, called ganglia. They are really nerve-centers, which receive and transmit impulses, originate and impart nervous

Fig. 66.



A. Nervous system of a Crab, showing its ganglia. B. The nervous system of a Caterpillar.

influence according to the nature of their organic surroundings. The ganglia situated over the esophagus of insects, correspond to the medulla oblongata in man, (§118, 119, 120), in which originate the spinal accessory, glosso-pharyngeal and pneumogastric nerves, (§121). The latter possesses double endowments and not only participates in the operations of deglutition, digestion, circulation and respiration, but is also a nerve of sensation

and instinctive motion. The suspension of respiration produces the painful sense of suffocation. In insects, these ganglia are scarcely any larger than those distributed within the abdomen, with which they connect by means of minute, nervous filaments. Insects are nimble in their movements and manifest instinct, corresponding to the perfection of their muscular and nervous systems. If we ascend to vertebrates, (animals having a back bone, containing a spinal nervous system) the nervous substance is augmented, the organic and voluntary processes are more complex, and the automatic actions begin to display intelligence.

152. Man possesses not only a complete sympathetic system, the rudiments of which are found in worms and insects, and a complete spinal system, less perfectly displayed in fishes, birds and quadrupeds, but, superadded to all these is a magnificent cerebrum—the special organ of mind. Within the cavity of the cranium are the cerebrum, cerebellum and medulla oblongata, “a double series of nervous ganglia connected with each other and with the spinal cord by transverse and longitudinal commissures,” which instantly and consentaneously blend all functions into unity. Thus the brain is universally present throughout the body. The intermingling nerve-rootlets complete this continuity and pervade all parts with its ubiquitous influences. The subtle play of motor and reflex impulses, of sentient and spiritual forces indicates a perfection of nervous endowments nowhere paralleled, and barely approached by inferior animals. This meager reference to brainless animals whose knots of ganglia throughout their bodies act automatically, as little brains, shows that instinct arises simultaneously with the development of the functions over which it presides. Here begins rudimentary, unreasoning intelligence. It originates within the body as an inward, vital impulse, is manifested in one undeviating manner, and therefore displays no intention or discretion. While Dr. Carpenter likens the human organism “to a keyed instrument, from which any music it is capable of producing can be called forth at the will of the performer,” he compares “a bee or any other insect to a barrel organ, which plays with the greatest exactness a certain number of tunes that are set upon it, but can do nothing else.” Instinct cannot learn from experience, nor improve by practice. But it seems to be the prophetic germ of a higher intelligence. It is

nearly as difficult to divide between instinct and a low grade of intelligence, as to distinguish between the psychical and psychological * functions of the brain.

153. The intimate relation of instinct to intelligence is admirably illustrated by the working honey-bee. With forethought it selects a habitation, constructs comb, collects honey, provides a cell for its young, covers the chrysalis, for which it deposits special nourishment, feeds the maggots and is disposed to defend its possessions. It is a social insect, prefers a colonial government and the reign of a queen, chastises trespassers, fights its enemies and defends its home. It manifests a degree of intelligence and its sagacity is unerring instinct. Reason, though not so acute as instinct, becomes, by education, discerning and keenly penetrative, and reveals the very secrets of profound thought. We recall the aptness of Prof. Agassiz's remark: "*There is even a certain antagonism between instinct and intelligence, so that instinct loses its force and peculiar characteristics, whenever intelligence becomes developed.*" Animals, having larger reasoning powers, manifest less instinct, and some, as the leopard, exercise both in a limited degree. This double endowment, by instinctive, and low reasoning intelligence, is indicated by his lying in ambush awaiting his prey, the hiding place being selected near the haunt of other animals, where nature offers some allurement to gratify the appetite.

154. Simple reflex action is an instinctive expression, manifesting an intuitive perception, almost intelligent, as shown by the contraction of the stomach upon the food, simply because it impinges upon the inner coats, and thus excites them to action. A better illustration — because it displays sympathy — is when the skin, disabled by cold, cannot act and its duties are largely performed by the kidneys. Though reflex action (instinctive faculties) is easily traced in the lower, organic processes, some writers have placed it on a level with rational deliberation.

* In the use of the terms psychical and psychological, we have observed the distinction which metaphysicians have recently made. They employ the term psychical, as indicating the relation of the human soul to sense, appetite, propensity, etc., and psychological, as indicating the ultimates of spiritual being. In this manner we use the word psychical as describing the relationship of the soul to animal experiences and being, and psychological as referring to the spiritual potencies of the soul. The distinction being introduced, we continue its use, rather than coin new words.

Undoubtedly all animals, having perception, have also what perception implies—consciousness—and this indicates the possession, in some degree, of reason. *Compound* reflex action extends into the domain of thought. *Simple* reflex action, or instinct, answers to the animal faculties, such as acquisitiveness, secretiveness, selfishness, reproduction, etc., and accomplishes two important purposes, viz: self-preservation and the preservation of the species. With many persons, these appear to be the chief ends of life!

155. The psychical functions connect, not only with animal propensities, but also, with the highest psychological faculties. Instinct is the representative of animal conditions, just as the highest, spiritual faculties are indicative of qualities and principles. The consistent mean of conduct is an equilibrium between these ultimate tendencies of our being. The psychological functions render the animal nature subservient to the rule of purity and holiness, and deeply influence it by the essential elements of spiritual existence. The psychical organs sustain an intermediate relation, receiving the impressions of the bodily propensities, and likewise, of the highest emotions. Obviously, these extreme influences,—the one growing out of animal conditions, the other, the result of spiritual relations,—pass into the psychical medium and are refracted by it, or made equivalent to one force. The body requires the qualifying influences of spirit. The tendencies of the animal faculties are selfish and limiting, those of the emotive, general, universal. The propensities, like gravity, expend their forces upon matter; the emotions pour forth torrents of feeling and produce rhapsodies of sentiment. The propensities naturally restrict their expression to a specific object of sense, the emotions respond to immaterial being. The tendencies of the former are acquisitive, selfish, gratifying; of the latter, bestowing, expanding, diffusing. The one class is restricted to the orbits of time and matter, the other, flows on through the limitless cycles of infinity and immortality. The former is satiated in animal gratification, the latter, in spiritual beatification. The one culminates in animal enjoyment, the other, expands to its ultimate conceptions in the perfections of Divine Love, and hallows it with devotion.

156. In the present life, mind and body are uniquely blended

by nervous matter. In this dual constitution, the spiritual, mental and animal functions are made inseparable and modify each other. The ultimate tendencies, of each extreme, exist, not absolutely for themselves, but for qualifying purposes, to establish a basis for the deeper economy of life. By the employment of reason, animal and spiritual experiences are mutually benefited and the consciousness rendered accountable. The bodily and mental workings are in many senses one, and help to interpret each other.

Every fact of mind has many aspects. A brain force, which results in thought, is simultaneously a physiological force, if it influence the bodily functions. Likewise, spiritual conceptions take their rise in the same blood that feeds the grosser tissues. This vital fluid is momentarily imparting, and receiving elements from all the bodily organs, and these in turn must influence the process of thought, and in a degree, determine its quality. The delicate outline, yea, even the substance of an idea, may depend upon the condition of the animal organs. Thought is subject to the laws of biology, and therefore, is a symbol of health. Morbid conditions of the system hang out their signs in words and utterances. Words, which express fear, are as true symptoms of functional difficulty, as is excessive palpitation. The organ, representing Fear, sustains a special relation to the functions of the heart, both in health and disease. Bright hopes characterize pulmonary complaints, as certainly as cough. Exquisite susceptibility of mind indicates equally extreme sensibility of body, and those persons, capable of fully expressing the highest emotions, are especially susceptible to bodily sensations. Tears are physical emblems of grief, and fellow-feeling calls forth sympathetic tears. Excessive anxiety of mind produces general excitability of body, which soon results in chronic diseases. Pleasurable emotions stimulate the processes of nutrition, and are restorative. This concomitance, of mental and bodily states, is very remarkable. Joy and love, as well as jealousy and anger, flash in the eye and mould the features to their expression. Grief excites the lachrymal, and rage, the salivary glands. Shame reddens the ears, drops the eyelids and flushes the face; but profligacy destroys these expressions. The blush, that suffuses the forehead of the bashful maiden, betrays her love, and *maternal* love,

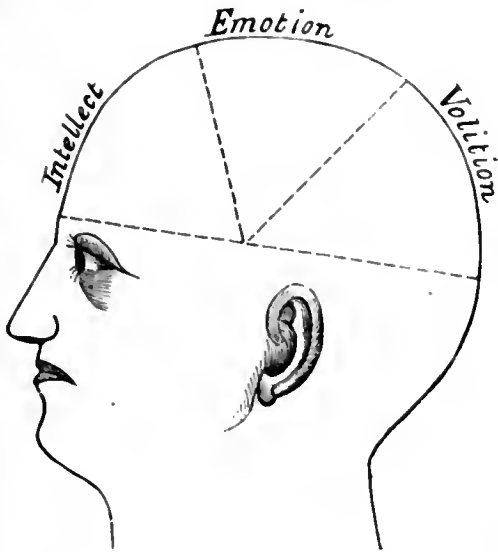
stirred by the appeals of an idol babe, excites the mammary gland to the secretion of milk. The sigh of melancholy indicates hepatic torpor, thus showing a special relation between the liver and respiratory organs. These conditions of mind and body react upon each other. Even the representative power of the imagination may produce the idea of a luscious peach, and cause the mouth to water. The thought of tasting a lemon fills the mouth with secretions, and a story, with unsavory associations, will completely turn the stomach.

The relationship of mental and physical functions may be illustrated by entirely removing the spleen of an animal, as of a dog or cat. One uniform effect, of its extirpation, is an unusual increase of the appetite, for at times the animal will eat voraciously any kind of food. The dog will devour, with avidity, the warm entrails of recently killed animals, and thrive in consequence of such an appetite. Another symptom, which usually follows the removal of the spleen, is an unnatural ferocity of disposition. Without any apparent provocation, the animal will attack those of its own, or of a different species. In some instances, these outbursts of irritability and violence are only occasional, but the experiments show quite conclusively, that the spleen moderates combativeness, restrains appetite, and co-operates with will and judgment in controlling them.

157. We shall briefly consider the practical question, viz: can the elements of mind be ideally arranged and represented, so as to more completely reveal their relations to, and disclose their effects upon the bodily functions? Modern philosophers conceive that mind consists of a trinity of essentials,—*Intellect*, *Emotion* and *Volition*. Physiologists assign to the cerebrum its functions, and neurological, as well as phrenological writers have located them as represented in Fig. 67. True, there is no structural division between the parts of the cerebrum, to indicate this diversity of function, nor is there any discoverable limit between the sensory and motory filaments of the same nerve. As no one has any reason for denying that separate portions of the brain may manifest distinct functions of the mind, we shall assume it as a conceded proposition. The regions of the cerebrum, thus ideally represented, describe but little more than half of the are of a circle, whereas, it is evident that the base of the nervous

mass is not idle, and is equally entitled to our consideration. In

Fig. 67.

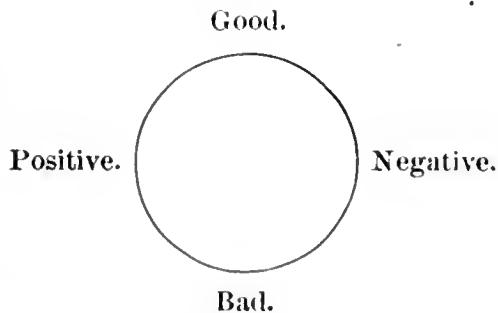


the posterior chamber of the skull is the cerebellum, anterior to which is the medulla oblongata connecting with the spinal cord and sympathetic system. These various parts are essential to the harmonious blending of mind and body. To this end, two conditions are necessary. (1.) All the nervous forces must be so related, that action and reaction may be fully established. (2.) A complete nervous circuit is requisite for

the reciprocal influence of mind and body.

158. Nature answers to mind in physical correspondencies. The planetary system, a grain of sand, even the ultimate molecule, is fashioned after a circle. Life itself springs from a spherule of forces. The perfection of an idea or the completeness of a conception is expressed by a circle. The elements of Science, Astronomy, Geology and Natural History are pictorially represented in this manner. How appropriately and logically can a fragment of natural history, this epitome of all nature and science—*the mind*,—be illustrated by a simple circle! Every element must act and react, and be equal and opposite. Thus may the existence of the opposing energies and functions of each faculty be equally represented. The contrast aids us in understanding their ultimate tendencies and enables us to correctly value and define their nature. Faculties of kindred qualities may be grouped together, and their antagonisms represented in the opposite arc of the circle. Let us employ a circle to represent mind. The concept

Fig. 68.



of the abstract quality of *good*, requires contrast with one of an obverse nature *bad*, (see Fig. 68). Opposite faculties may be portrayed in the same manner. The functions of the cerebrum and spinal system may be symbolically represented, as those of the highest and lowest organs, thus giving rise to the positive and negative ultimates of feeling. The author conceives of no other way by which the widely contrasted facts of human experience can be so perfectly symbolized. *Good*, (Fig. 68,) may represent moral faculties, and *bad*, their opposites. Undoubtedly nature is not so arbitrary in her arrangements as we are in shadowing forth our imperfect conceptions, yet is not this a decided improvement in determining cerebral faculties, and their relations? We observe how scholars and philosophers confound the noblest and most exalted emotions with the animal propensities instead of distinguishing between them. "*The emotions are a department of the feelings, formed by the intervention of intellectual processes. Several of them are so characteristic that they can be known only by individual experiences; as Wonder, Fear, Love, Anger.*" See Logic: Deductive and Inductive, by Alexander Bain, LL. D., page 508, (1874).

This is not an exceptional, but a common example of classifying Love,—the highest and purest of the emotions,—with Anger,—an antipathic, animal propensity. Is it not more practical and philosophical to group the emotive faculties together, and upon an opposite are represent their antagonistic energies, the ultimate tendencies of which are criminal? Both groups are mutually modifying and restraining; the one relates instinctively to the bodily wants, the other to the requirements of mind, and each is essential to a consistent life. Accordingly, we deem it philosophical to consider words as symbols of mental faculties and classify together such spiritual unities as joy, hope, faith and love, the tendencies of which are to quicken and transform the ultimates of carnal life into the rudiments of an immortal one—the beginning of heaven on earth. These restrain those opposites, which lead to crime and death. Love and Hate are as antagonistic as heat and cold, and the usefulness of both depends upon their *proper* temperament. Fig. 69 represents the antagonism of the Intellectual faculties to the Animal, the Emotional to the Criminal, the Volitive to the Enfeebling. It is not

essential to discover in the nerve-substance the precise focus from

Fig. 69.



which an impulse originates. We may reasonably interpret the functions of the brain, and yet be unable to disclose the duties of any single nerve-fibre composing it. For the size of these filaments see ¶107. We may foretell what each season of the year will bring forth, when we cannot forecast the history of a blade of grass or a single grain of any kind. We may predict the amount of rain for a month and be unable to prognosticate, correctly, the character of any storm, or give

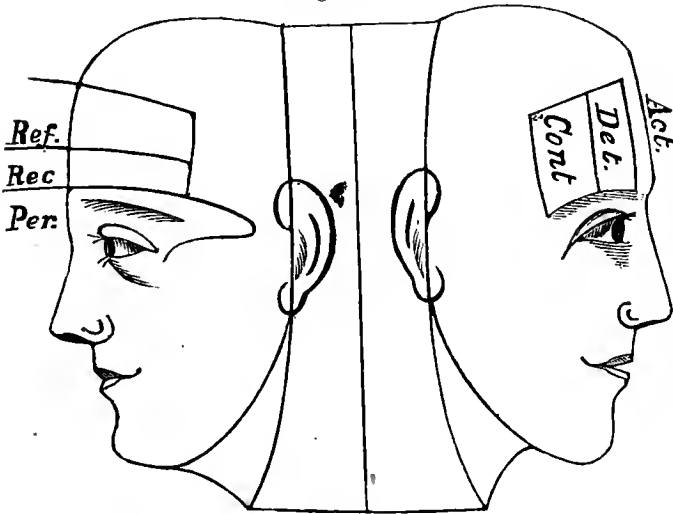
the history of a special drop of water. Although we cannot follow the movements of individuals in a battle, yet we may predict the result of the combat; and thus, we judge of the functions of the brain without the ability to reveal the actions of one of the organic molecules of which it is composed. We aim to make a general, reasonable and popular presentation of cerebral functions and their bearing upon health and disease, as more extended researches and investigations will be made by Drs. Buchanan, Flint, Brown-Sequard, Hammond, Wilder and others, who are endeavoring to unfold these wonderful powers.

REGIONAL DIVISIONS.

159. The anterior portion of the cerebrum is devoted to intellectual processes, which freely expend the vital energies. The Intellectual faculties are classified as represented in Fig. 70. The lower portion of the brain, bounded exteriorly by the superciliary ridge, corresponds to the Perceptive, the middle region to the Recollective and the upper to the Reflective faculties. (See also Fig. 64, *b*.) If we divide the forehead by three vertical lines, they represent, respectively, the Active, Deliberative and Contemplative departments of the intellect, all the processes of which are sustained by vital changes—the transformation of organized materials. No mental manifestation can be made without

it. Every thought implies waste as well as transition of brain-sub-

Fig. 70.



stance. The gardener's hoe wears by use, and so does every member of the animal organism. Otherwise, nutrition would be unnecessary for the adult. The production of thought wears away the cerebral substance. In ordinary use the

brain requires one-fifth of the blood to support its growth and repair. Great mental efforts are attended by a corresponding expenditure of vital treasures, which are subtracted from the total forces available for the necessities of the system. To repair the losses thus occasioned, materials are appropriated from the blood, which grants supplies in proportion to the demands made by the mental activities. The generation of thought destroys the cohesion of the nervous particles and breaks down the cineritious (ashy) cells of the cerebrum as absolutely as the digging of a canal wears away the iron particles of the spade. The brain would soon wear out did not the nutritive functions constantly replace the destroyed cells. The intellect, whether engaged in observation, generalization or in recondite studies consumes the brain and blood, hence intellectual activity implies VITAL EXPENDITURE. *Expenditure* is an emphatic word, because, all functions are essential to the production of this nerve-energy, which returns to the system no compensating equivalent. Physical exercise, although attended by muscular and structural wastes, is advantageous to the circulation of the blood, nutrition, secretion, and in fact beneficial to all the organic processes. This is not true of vigorous and prolonged mental labor, which is not attended by any of these incidental advantages. If a child attend a school in which mental development supersedes physical culture, an inordinate ambition sways the youthful mind, and its

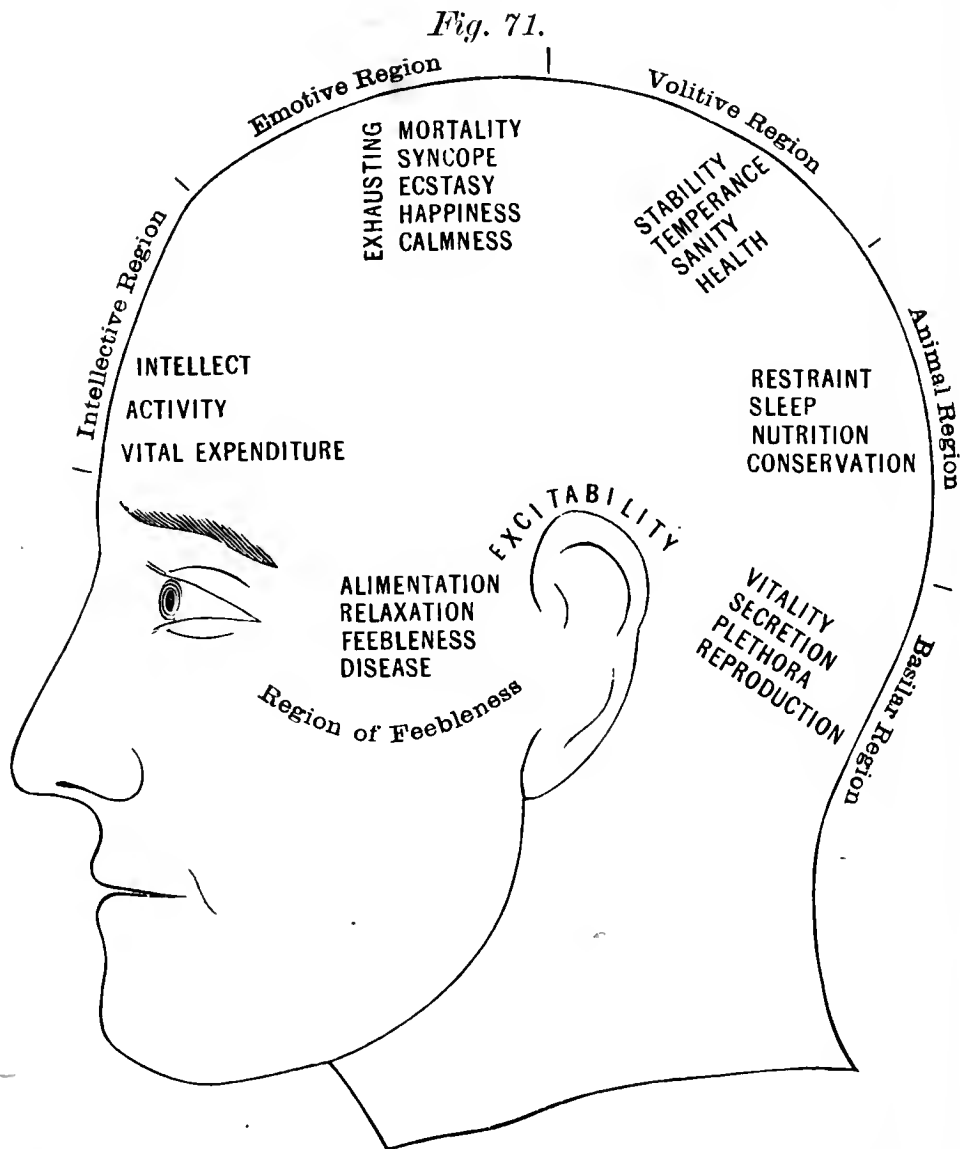
baneful effects upon the health soon become manifest. Rigorous application of the intellectual faculties consumes the blood, absorbs the vital forces, weakens the organic functions while palor covers the face, and the eyes sparkle with a hectic radiance. The family physician pronounces the condition "*Anæmic*" (*bloodless*) and this diminution in the quantity and quality of the blood is owing to the undue appropriation by the intellect which transforms it into thought. Contrariwise, if the blood be destroyed or its vitality reduced, in the same proportion, will the mental energies be weakened and all the functional powers of the physical system, enfeebled. In brief, if the intellect be unduly exercised, the red corpuscles of the sanguine fluid will be gradually destroyed, and the serum allowed to predominate. The blood becomes weak and watery, the subject is nervous, dropsical, consumptive, and a derangement of the important functions will follow in the train of debility. Excessive intellection results in an *adynamic* (weak) state of the system, and the person thus affected becomes languid, spiritless and an easy prey to disease. This mental cause and its bodily results may be classified in the following order. Mental Cause: EXCESSIVE INTELLIGENCE, which produces *waste of the brain substance and blood*.

Bodily results:	{	VITAL EXPENDITURE.
		ANÆMIA.
		ADYNAMIC CONDITION.

This kind of waste is best summed up in the words, VITAL EXPENDITURE. Upon the forehead, as represented in Fig. 71, we will therefore inscribe INTELLECT, ACTIVITY and VITAL EXPENDITURE. Intellectual employment is usually accompanied by sedentary habits, neglect of healthful exercise and a deprivation of pure air, to all of which, ill health may be attributed. Were the intellectual expenditure stopped, and the forces turned into recuperative channels, many a person would become beautiful in the ruddy glow of health. Without health there is no use for thought; the cultivation of the mind is just as natural and essential, as the culture of the body, and the trained development of both is needed for mutual improvement.

EMOTIVE FACULTIES.

160. What results follow the *natural* and *excessive* exercise of the EMOTIVE FACULTIES? As distinct organs of the body



have diverse functions, in like manner, different parts of the brain perform the separate operations of the mind. It is easier to discriminate between the products of these unlike endowments, than to determine the location of the faculties. The intellect deals with concretes, the emotions with abstractions; the intellect is exercised with things, the emotions dwell upon attributes; the intellect considers the forces of matter, the emotions, the powers

of the soul; the former deliberates upon the truths of science, the latter, reflect upon duties, obligations, or moral responsibilities; the first is satisfied only with new truths, original ideas and rational changes, the last rest securely in fundamental principles, moral certainties and the absolute constancy of perfect love. The intellectual faculties are wakeful, questioning, mistrustful; the emotions are blind, hopeful, confiding; the one reasoning, exacting, demonstrating; the other, believing, inspiring, devout. The intellect sees, the emotions feel,—“in the Thought is the fall; in the Heart the atonement;” and though these functions may blend, the one can never supersede the other.

161. The quality of the emotional faculties is represented by Benevolence, Sympathy, Joy, Hope, Confidence, Gratitude, Love and Devotion, all of which are the very antitheses of the expressions of animal feeling described as Melancholy, Fear, Anger, Hate, Malevolence and Despair. To the emotions we refer the highest qualities of character; while their opposites represent the animal or baser impulses. True, the emotions modify the propensities as sympathy softens grief. They may subdue and refine the animal feelings and thus veil them with a delicacy characteristic of their own purity; but the unrestrained impulses of grief find vent in loud lamentations, and the bitter disappointments of the selfish faculties are passionate and violent.

162. The *Emotive Faculties*—the organs of spiritual perceptions—are impersonal, outflowing, bestowing. The function represented by Benevolence is willing, giving. Devotion expresses dedication, consecration; Gratitude manifests a warm and friendly feeling toward a benefactor.

“The depth immense of endless gratitude.”—MILTON.

Love flames toward its object, is out-pouring, blessing; indeed, all the emotions are gushing, effusive, impetuous and profusely flowing; grand, torrent-like, overwhelming; employing ideal, immaterial, spiritual expressions, evolving principles and perfections while feeling for happiness and immortality. Though beginning with humanity, they embody the Divine. They expand to their ultimate conceptions in the sublime attributes,—the perfections of the God of Love; associating with mortality a divine destiny commencing on earth, augmenting through time,

pausing not at the portals of death—the gateway to eternity—but flowing onward through realms of eternal day.

163. We may consider their counter-vailing influences, for without doubt, by checking the selfish tendencies, restraining the animal propensities, they assist in controlling the sensual desires and thus balance the mind and body. They tend to quiet the storms of passion, lull turbulence and produce consistency of conduct. Such an equilibrium we call *happiness*. If the emotions be acute and vehement, they will absorb all other impressions and revel in their sharply culminating and delightful experiences. They exhaust all the bodily energies and a functional suspension, termed *ecstasy*, must follow. It is a swooning, or fainting, a temporary loss of sensation and volition, accompanied by involuntary movements of the arms, smiting of the hands, sighing and short ejaculatory expressions of rapture. This condition, occasioned by excessive emotion, as in praying, singing, exhortations and sympathetic appeals, is contagious, often spreading with mysterious celerity. Its culmination—ecstasy—is popularly termed "*the power*." When gradually induced it is called *trance*, and either state is regarded by many as supernatural, caused by the immediate operation of the Holy Spirit. The explanation is simply this: the emotive faculties are deprivative; when suddenly and powerfully excited, they quickly expend the organic energies, so that the individual swoons from sheer exhaustion. Undue expenditure of this class of brain functions, not only consumes the bodily powers, but exhausts and destroys other mental operations. The sudden collapse of all the voluntary functions resembles syncope (fainting) produced by blood-letting. We may sum up this rapid expenditure of energy in one expressive word,—EXHAUSTION, which results in *Ecstasy*, or *trance*, and if carried a degree further, will terminate in *mortality*. Beginning with the natural exercise of the emotions, we may state the order of sequences thus:

Ordinary exercise leads to	CALMNESS.
Proper exercise " "	HAPPINESS.
Increased exercise " "	ECSTASY.
Excessive exercise " "	SYNCOPE.
Prolonged exercise " "	TRANCE.
Fatal exercise " "	MORTALITY.
Their tendencies are	EXHAUSTIVE.

VOLITIVE FACULTIES.

What are the psycho-physiological and morbid results attending the ordinary and immoderate exercise of the VOLITIVE FACULTIES?

164. The generic term WILL, comprehends those faculties, the action of which is termed *volition*. The faculties of the will are Determination, Firmness, Decision, Ambition, Authority and Vigilance, all of which indicate strength and continuity of purpose. Bordering upon the emotions are Patience and Perseverance, while adjoining the animal faculties are Power, Coarseness and Love of Display. The former exhibit moral, the latter animal heroism. A sense of power urges forward, whether it be higher or lower, just as the sense of greatness makes a man *great* by inspiring him with confidence to put forth exertion. Nature is truthful in her inspirations. We know that courage, assurance and conscious power are necessary for the fulfillment of purpose, because intention precedes action. Will-power is a synonym of HEALTH, and the constant exercise of these psychical faculties exert a steady, regular and energizing influence upon the bodily functions. We translate psychical energies as physiological industry. These faculties impart tone to the system, sustain the processes of nutrition, circulation, assimilation, secretion, excretion, and express vigor, tension and elasticity as their distinguishing characteristics. They temper each element of character as well as every vital act. They infuse the organism with a resisting power which renders it impervious to the influence of miasms and malaria, and overcomes that passivity and impressibility, so favorable to disease. Firmness expresses a physiological cohesiveness which strongly binds together the fibres of the tissues, and renders the organization compact and powerful. He, who can artfully employ these energies, is already master of one-half of the diseases incident to mankind and wields an indispensable complement of medicine, in the successful practice of the healing art. It is the key to success, for it unlocks difficulties and opens wide the door, which leads to fortunate issues.

Surplus energy sustains the circulation, increases capillary action, as though the excess of neural power were discharged from the distant extremity of each nerve and pervaded every

tissue. The voluntary muscles indicate their participation in this energy, and indeed, the whole organism is exalted by the influence of the volitive faculties. They oppose the tendencies of Feebleness, Relaxation, Derangement and modify their proclivities to Disease. The will is the servant of the intellect, emotions and propensities, and the executive agent of all the faculties. When the volitive faculties are in excess they may overdo the other functions, prematurely break down the bodily organs, and by overtaxing the system, subject it to pain and disorder. Briefly, the tendencies of these faculties may be stated as follows:

VOLITIVE FACULTIES.

The natural effect of **FIRMNESS** is stability (physiological). The exercise of the volitive faculties displays both mental and bodily **ENERGY**.

Their tendencies are to

{	TEMPERANCE, SANITY and HEALTH.
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ANIMAL FACULTIES.

Under this generic term we will group those cerebral powers which are common to inferior animals, and closely allied to bodily conditions and necessities. As denoting a group of animal faculties they relate not only to the organic functions and self-preservation, but antagonize the action of the intellect,

Fig. 72.

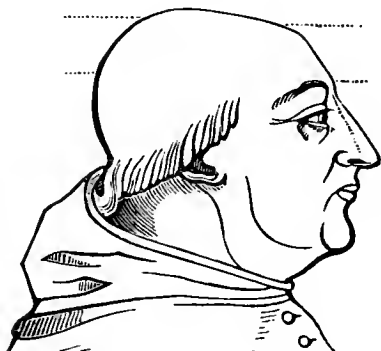


Fig. 73.



Fig. 72 is a representation of the cerebral conformation of Alexander VI., exhibiting a full development of the conservative faculties, and whose character, according to history, brought reproach upon the papal chair.

Fig. 73 represents Zeno, a profound thinker and moral philosopher. The contrast in their cranial developments is no greater than in their lives.

oppose the evolution of new ideas, check investigation and discredit the value of truth. Adhesiveness clings to old ideas and is in league with traditional opinions, being blindly conservative. The animal faculties tend to stifle investigation and put authority above truth or science. Having a fixity of nature—a stationary attachment—they treat all intellectual developments as absurd. When these faculties bear sway, thought is obscured, intolerance of disposition is manifested and mental progress arrested. Thus they evince their conservative nature and since they relate to individual interests they represent the elements of instinct. Such are the functions of Acquisitiveness, Secretiveness, Selfishness and Combateness as well as the Generative powers. If these faculties predominate, all intellectual advances are treated as experiments or theoretical novelties, and rejected as evanescent and worthless. If the promptings of these be followed, there will be no innovation, and the orthodoxy of the dark ages remains the standard for time. As the honey-bee once constructed its cell, so it will always, and similarly would stubborn Adhesiveness restrict all other faculties to its own narrow province. The animal faculties coincide with Lethargy, Sleep and Nutrition, thus favoring organic restoration. The intellectual faculties are wakeful, active, irrepressible, while the animal powers tend to repose, sleep and renovation and thus suspend the activities of thought, sense and motion. The intellect when absorbed in deep studies, disregards time, but the animal faculties observe periodic intervals of activity and repose. The intellect expends the energy of the sensorial centers, induces fatigue and suffering, whereas, the animal faculties overcome the vigils of thought, and produce refreshing slumber. Dr. Young styles sleep, as, "tired nature's sweet restorer," and Dr. Alexander Wilder speaks of it, as, "our favorite panacea for ailments." Swedenborg declared that "in sleep the brain folded itself up, and the soul journeyed through the body, repairing the wastes of the previous day." When sleep is natural, the insane are in a fair way of recovery, the sick become convalescent, ulcers granulate and lesions are made whole.

The animal faculties are skeptical, stubborn and dogmatic, readily combining with those of the violent class, the ultimate tendencies of which are criminal. They are likewise conceited,

assuming and clannish. Any person distinguished by them, will cling to old associations, perpetuate the status of existing parties, be a stickler for creed, ceremonies and hoary opinions, and adhere to ancient orthodoxy in medicine and religion. The animal faculties, since they are staid, regular and devoted to habit, naturally antagonize genius, sensibility and originality. Their mental tendencies have been fairly referred to, and their physiological results may be represented as follows:

The animal faculties produce	{	RESTRAINT, SLEEP, NUTRITION, RESTORATION, CONSERVATION.
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BASILAR FACULTIES.

165. The ultimate tendencies of the faculties, represented by the posterior base of the cerebrum, are violent and criminal. Being contiguous to the junction of the cerebrum and spinal system, they are subject to the influence of animal experiences. A large development of these faculties is indicated by an unusual breadth and depth of the occipital base of the brain, and a full, thick neck, both of which denote good alimentative and digestive powers. Active nutrition, plethora of the circulation, vigorous secretion, a well developed muscular system, large heart and lungs are accessory conditions. We do not associate corpulence, or surplus of vitality with a long, slender neck. The character of cerebral manifestations is represented by the baser faculties of mind, such as Combativeness, Destructiveness, Desperation, Turbulence, Hatred and Revenge. If unrestrained, these culminate in violent and criminal acts; if *regulated*, they are employed in personal defense. When *unduly excited*, they lead to dissipation, obscenity, swearing, rowdyism and licentiousness; when *perverted*, they are the sources of recklessness, quarrels, frauds, falsehoods, robberies and homicides. They are unlike instinct in that they are not self-limiting. The intimate relation which they sustain to the stomach and nutritive functions, is strikingly displayed in the habit of alcoholic intoxication. Spirituous drinks deprave the appetite, derange and destroy the stomach, poison the blood, and pervert all the

functions of mind and body; and their injurious influence upon the nerves and basilar faculties is equally remarkable. They excite combativeness, selfishness, irritability, and exaggerate the influence of the animal organs. Intemperance results in disputes, fights, brawls and murders—the legitimate sequences of which are misunderstandings, suits at law, criminal proceedings, states prison and the gallows. It is, therefore, evident that the ultimate tendencies of these faculties are tyrannical, cruel, violent and atrocious. They antagonize the noble, moral faculties—Faith, Love and Devotion—and, whenever temptation, inordinately allures, the course of life is likely to be characterized by dishonorable, deceptive and treacherous conduct.

166. The pangs of hunger will cause soldiers to act more like ravenous beasts, than, rational beings. It is animal instinct that directs the soldier to seek first for the gratification of his appetite. Some persons impelled by carnivorous desires, yearn for raw meat, and cannot be satisfied unless their food is flavored with the flesh of animals. Their bodies increase and thrive, even to repletion. Contrast these individuals with pale, lean, anæmic (bloodless) ones, who crave innutritious articles of diet, and eat soft stones, slate, chalk, blue clay and soft coal. Such perversions of the appetite are manifest only when there is, either a diminution in the volume of blood, deficient alimentation, defective assimilation, or a general depravity of the nutritive functions. Morbid conditions generate vitiating tendencies and destroy the natural appetite.

167. While alcoholic stimulants affect the posterior occipital organs, opium intoxicates the semi-intellectual faculties; and excites reverie, dreamy ideality, optical illusions and the creative powers of the imagination; some of these unnatural representations are said to be grotesquely beautiful and enjoyable. The effects of this agent differ from those of alcoholic intoxication by not deadening the moral sensibilities, or arousing the animal propensities. Opium smokers are dreamy and abstract, not quarrelsome or violent. Those, who use ardent spirits, lose their moral delicacy, the intellect becomes dull, the reason cloudy, and the judgement is overruled by appetite. It is conceded that the trophic center is principally in the medulla oblongata; the cerebellum

and lower cerebral ganglia, however, favorably influence the nutritive functions, and when these organs are large and active, a plethoric condition is the natural consequence.* Redundancy of blood, in the body, indicates preponderance of the basilar organs. These faculties being vehement in character, an excess of animality produces those conditions which result in acute and inflammatory diseases. We may express these conditions of the system as follows:

Animal Faculties, correspond to the lower instinctive manifestations.

Elements of character are	{	ACQUISITIVENESS, SELFISHNESS, COMBATIVENESS.
And tend to	{	TURBULENCE, CRIME.
They relate especially to the functions of	{	ALIMENTATION, SECRETION, NUTRITION, REPRODUCTION.
A large development of them indicates	{	VITALITY, PLETHORA, HYPERÆMIA (active congestion).

These naturally give rise to violent diseases which may be arranged as follows:

Class of diseases	Sthenic. {	INFLAMMATION, RHEUMATISM, GOUT, CONVULSIONS, ETC.
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REGION OF FEEBLENESS..

168. Although the middle lobe of the cerebrum, at the base of the brain (see ¶ 130), does not denote decided force of

* Mr. Herbert Spencer regards the Medulla as the seat of all the feelings—the instrument of those emotions which are intensely painful or pleasurable. We are inclined to believe that they originate as encephalic forces, communicated to the medulla, which, in turn, modifies and reflects them, since it receives the influences of functional changes from the cerebrum above, as well as sensory impressions from the body below, and sustains an active relationship between them. We give to this region the term of *Excitability*, where we locate chronic disease. The relation which the medulla sustains to painful and pleasurable emotions is undoubtedly the reason that Mr. Spencer regards “the medulla so generally the seat of chronic nervous diseases, whether the excess from which they arise be sensational, emotional, or intellectual.”

character, or energy of constitution, yet it has a certain sphere of normal action which is essential to the harmony of mind and body. If this region be largely developed, the constitution is languid, inefficient, sensitive and abnormally disposed. But if it be deficient, the volitive energies preponderate, and there is a deficiency of those susceptibilities of constitution, which prevent excessive waste. The cerebral faculties, belonging to the region of feebleness are Fear, Anxiety, Sensibility, Servility, Relaxation and Melancholy, and their excessive predominance indicates a weak, vacillating, irresolute character, and the existence of those bodily conditions which produce *general excitability* and chronic derangement. A full development of this portion of the brain indicates that the person is naturally dependent, inferior, and a servant to stronger characters. Such an one is fearful, fretful, complaining, irritable, dejected, morose and sooner or later, becomes a fit subject for chronic disease.* The ultimate result of excessive fear, excitability, and irritability, is functional, or organic derangement,—the morbid conditions represented by the word Disease. The medulla oblongata and portions of the middle lobe of the brain, the functions of which represent, Excitability, Anxiety, Fear and Irritability (symbols of physical profligacy), are located just between the ears (see Figs. 59 and 71). Inferior animals distinguished for breadth between the ears, are not only cunning and treacherous, but very excitable and irritable. The combativeness of the dog may be thoroughly aroused by rubbing his ears, and under the acute excitement thus produced, he will attack any animal. The head of the Fox is remarkable for its extreme width at the region of Fear. He is proverbially crafty and treacherous, always excitable, and so variable in temper that he can never be trusted. He is a very timid thief, exceedingly

* Certain disturbances of the bodily organs excite fear. The apprehension of danger, or simply mental excitement, does not explain what is called "water fright," "stage fright," terror excited by the raging of a storm, or the rocking of a boat. In such instances the heart may beat heavily, the respiration be irregular and attended by precordial oppression, giddiness, weakness and physical inability to articulate a word or recall a thought. These bodily conditions are not subject to the control of the will, but arise when individuals are perfectly assured that no danger threatens. At other times, as in a fearful tempest upon the sea, although the danger be imminent, if the bodily functions are not disturbed, there is not the least manifestation of fear.

suspicious, irregular in habits, and frequently driven by hunger into mischievous depredations.

Fig. 74.



Sly Reynard.

169. The organ of alimentiveness, —located directly in front of the ear —indicates the functional conditions of the stomach, which when aroused by excessive hunger, exerts a debasing influence upon this and all of the adjacent organs, and is demoralizing to both body and mind. In obedience to the instinct of hunger, children will slyly plunder gardens and

orchards, displaying profligate, if not reckless tendencies in the gratification of the appetite. In this regional division we include the medulla, the posterior and middle portions of which give rise to the pneumogastric nerve. This nerve receives branches from the spinal accessory, facial, hypoglossal, and the anterior trunks of the first and second cervical, and its filaments are distributed to the lungs, stomach, liver, spleen, pancreas and gall bladder (see Fig. 59, with explanation). Its agency is necessary to maintain digestion, circulation and respiration, since, as the medium of communication, it conveys from the brain, large supplies of nervous force to sustain these vital functions. It likewise, instantly reports the impressions of these physiological processes to the brain, and especially to those parts which, by analogy of functions, are intimately related to the stomach. Hence, we observe that the conditions of the stomach give rise to reflex impulses, which involuntarily arouse the animal faculties to the gratification of the appetite. That the stomach belongs to the enfeebling organs is evident from the fact that when it is inflamed the body is completely prostrated. It appears to be a dissipator of energy, as well as the cause of dissipation.

170. We have already alluded to the perverting tendencies of alcoholic stimulus. Its peculiar influence upon the cerebellum causes the subject to reel and stagger, as though a portion of that organ were removed (see ¶ 129); the group of energetic faculties is stupefied, and mental, as well as corporeal lethargy is the result. The reaction, which inevitably follows, is almost unbearable, and relief is sought by repeating and increasing the

poisonous draughts, the primary influence of which is stimulating, the ulterior, depressing. Alcoholic stimulus unduly excites the nervous centers, the heart and arteries, and, consequently, the blood is carried to the surface of the body, where it counteracts the influence of cold and exposure—the frequent attendants upon inebriety! With certainty does this practice pervert the appetite, interrupt habits of industry and destroy all force of character! Pecuniary, physical, and mental demoralization, therefore, are sure to follow as the sequences of habitual, alcoholic intoxication.

171. That ordinary alimentation—which includes the process of digestion, the subsequent vital changes involved in the conversion of food into blood and its final transformation into tissue,—causes mental languor and dulness as well as bodily exhaustion, is attested by universal experience. A torpid condition of the liver, (one of the most inveterate of chronic derangements,) is indicated by sullenness, melancholy, despondency, loss of interest in the affairs of life, sluggishness, etc., and the ultimate tendency of this morbid state is *suicide*. A broad and deep development of the middle lobe of the brain, shown by a fulness under the chin, and of the adjacent portion of the neck, denotes tendencies to sleep-walking, delirium and insanity. If such characteristics of the organization do not culminate in mental derangement, they exhibit childishness, helplessness and great dependence. Age abates the vigor of the executive faculties and old people manifest not only bodily infirmities, but the relaxing, and enfeebling influences proceeding from the lower portions of the brain. They tottle about in their second childhood, mentally and physically enervated. Those who become dissipated by the use of intoxicating beverages, are not only weak, trifling and foolish, but walk with an unsteadiness that betrays their condition. These illustrations show that this part of the brain is void of energy. Diseases of the digestive organs also indicate it. Cholera, whether induced by invisible animalcules in the air, or water, takes the route of the alimentary canal, opens the vital gates, and myriads of victims are swept down to death. It proves remarkably fatal to those having this cerebral conformation. Perhaps enough has been suggested to indicate the relaxing and enfeebling tendencies of this region of the brain, and they may be represented as follows:

REGION OF FEEBLENESS.

Cerebral Functions :	{	SERVILITY, CAUTIOUSNESS, FEAR, ANXIETY, SENSIBILITY, CUNNING, PROFLIGACY.
Physiological conditions and tendencies:	{	ATONIC, EXCITABILITY, RELAXATION, FEEBLENESS, DISEASE.

This classification shows the tendencies to chronic disease, functional derangement, insanity and suicide.

GENERAL CONSIDERATIONS.

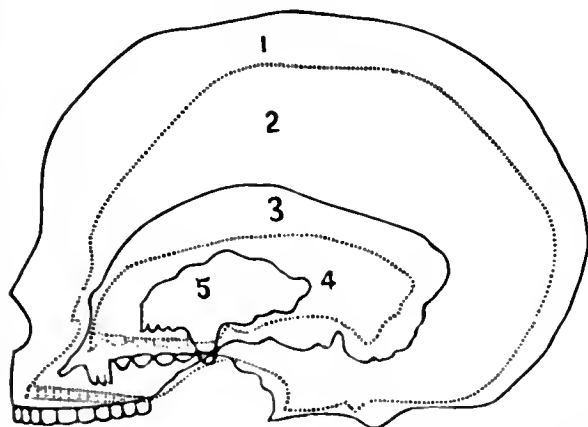
172. Before the structure of the brain was understood, Buffon spoke of it as a "mucous substance of no great importance." Its functional significance was so slightly appreciated that some people hardly suspected they had any brains, unless an *accident* revealed their existence! Latterly, however, it is generally understood, that the perfection of an animal depends upon the number, and development of the organs controlled by the nervous system, the sovereign royalty of which is symbolized by a grand cerebrum,—the throne of Reason. That animal, which is so low in the scale of organization as to resemble a vegetable, belongs to an ascending series ending in man. The lowest species have no conscious perception, and their movements do not necessarily indicate sensation or volition. Instinct culminates in the *Articulates*—especially in the class of Insecteans; while created intelligence reaches its acme in man—the highest representative of the *Vertebrates*.

"All things by regular degrees arise—
From mere existence unto life, from life
To intellectual power; and each degree
Has its peculiar necessary stamp,
Cognizable in forms distinct and lines."—LAVATER.

Man, in the faculties of mind, possesses more than a complement for instinct; some of the lower animals, however, seem to

share his rational nature and, to a certain degree, become responsible to him. Finally, the manifestations of mind bear a relation to the development of cerebral substance, and to the bodily organization which supplies the brain with blood. Fig. 75,

Fig. 75.



Outline of Skulls. 1. European. 2. Negro. 3. Tiger. 4. Hedge Hog. 5. Sloth.

shows the relative sizes of brain in the lower animals, compared with that of man; the peculiarities of each agreeing with its cerebral conformation. It is easier to measure the capacity of skulls, in different races, than to procure and weigh their brains. The following table has been published.

CRANIAL CAPACITY OF HUMAN RACES.

RACE.	CUBIC INCHES.
Swedes,	100.00
Anglo Saxons,	96.00
Finns,	95.00
Anglo Americans,	94.30
Esquimaux,	86.32
North American Indians,	84.00
Native Africans,	83.70
Mexicans,	81.70
American Negroes,	80.80
Peruvians and Hottentots,	75.30
Australians,	75.00
Gorilla, adult,	34.50
Idiot,	22.57

Mr. Davis, of England, having a collection of about eighteen hundred cranial specimens, obtained from different quarters of the Globe, ascertained the relative volume of brain in different races, by filling the skulls with dry sand. He found that the European averaged 92 cubic inches, the Oceanic 89, the Asiatic 88, the African 86, the Australian 81. Dr. Morton, of Philadelphia, had a collection of over one thousand skulls, and his

conclusions were that the Caucasian brain was the largest, the Mongolian next in size, the Malay and American Indian smaller, and the Ethiopian smallest of all. The average weight of brain, in 278 Europeans, was 49.50 oz., in 24 White American soldiers, 52.06 oz., indicating a greater *average* for the American brain.

	OUNCES.
The brain of Cuvier, the celebrated naturalist, weighed	64.33
Ruloff—murderer and linguist,	59.00
Dr. Spurzheim—phrenologist,	55.06
Celebrated philologist,	47.99
Celebrated mineralogist,	43.24
Upholsterer,	40.91

The weight of the human brain varies from 40 to 60 oz.; that of idiots from 12 to 36 and 40 oz. The average of 278 male European brains was $49\frac{1}{2}$ oz., while that of 191 females was 44 oz. If we compare the weight of the female brain with that of the body, the ratio is found to be, as 1:36.46, while that of the male is, as 1:36.50; showing that, relatively, the female brain is the larger. It appears that neither the absolute, nor relative size of the cerebrum, but the amount of gray matter, which it contains, is the criterion of mental power. Although a large cerebrum is generally indicative of more cineritious substance than a small one, yet it is ascertained that the gray substance depends upon the number, and depth of the convolutions of the brain, and the deeper its fissures, the more abundant is this *dynamic tissue*,—so-called because it indicates the power of the mind (see ¶ 130). It is this substance which acts consciously, while the white portion only receives, and transmits impressions.

173. We do not wish to underrate any attempt, heretofore made, to classify the functions of mind and assign to them an appropriate nomenclature. It is not unusual for scientists to give advice to phrenologists and point out the fallacies of their system; but it is hardly worth while to indulge in destructive criticism, unless something better is offered, as the day has passed for ridiculing endeavors to understand and interpret the physiology of the brain. The all important question is, not whether phrenologists have properly located and rightly named all the faculties of mind, but have their expositions been

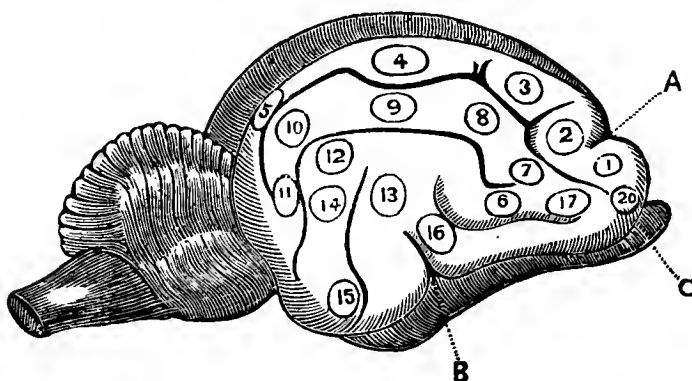
useful in the development of truth. While endeavoring to connect each mental power with a local habitation in the brain, the system of phrenology may be chargeable with some cross divisions (incongruous classification of the faculties,) and yet it has furnished an analysis of the mind which has been of incalculable service to writers upon mental philosophy. Phrenology, in popularizing its views, has interested thousands in their own organizations and powers, who would otherwise have remained indifferent. It has called the attention to mental and bodily unities, served as a guide to explain the physical and psychical characteristics of individuals, and been instrumental in applying physiological and hygienic principles to the habits of life, thus rendering a service for which the world is greatly indebted. Samuel George Morton, M. D., whose eminent abilities and scholarship are unquestionable, employs the following language:

174. "The importance of the brain as the seat of the faculties of the mind, is pre-eminent in the animal economy. Hence, the avidity with which its structure and functions have been studied in our time; for, although much remains to be explained, much has certainly been accomplished. We have reason to believe, not only that the brain is the center of the whole series of mental manifestations, but that its several parts are so many organs; each one of which performs its peculiar and distinctive office. But the number, locality, and functions of these several organs are far from being determined: nor should this uncertainty surprise us, when we reflect on the slow and devious process by which mankind has arrived at some of the simplest physiological truths, and the difficulties that environ all inquiries into the nature of the organic functions."

175. We may here allude to the recent experimental researches with reference to the functions of various portions of the brain, prosecuted by Dr. Ferrier, of England. He applied the electric current to different parts of the cortical substance of the cerebrum in lower animals which had been rendered insensible by chloroform, and by it, could call forth muscular actions, expressive of ideas and emotions. Thus, in a cat, the application of the electrodes at point 2 (Fig. 76), caused elevation of the shoulder and adduction of the limb, exactly as when a cat strikes a ball with its paw; at point 4, corrugation of the left eye-brow, and the drawing

inward and downward of the left ear; when applied at point 5,

Fig. 76.



Side view of brain of a Cat. A. Crucial sulcus dividing anterior convolutions. B. Fissure of Sylvius. C. Olfactory bulb.

the animal exhibited signs of pain, screamed, and kicked with both hind legs especially the left, at the same time turned its head around and looked behind in an astonished manner; at point 6, clutching movement of the left paw, with protrusion of the claws; at point 13, twitching backward of the left ear, and rotation of the head to the left and slightly upward, as if the animal were listening; at point 17, restlessness, opening of the mouth, and long-continued cries as if of rage or pain; at a point on the under side of the hemisphere, not shown in this figure, the animal started up, threw back its head, opened its eyes widely, lashed its tail, panted, screamed and spit as if in furious rage; and at point 20, sudden contraction of the muscles of the front of the chest and neck, and of the depressors (muscles) of the lower jaw, with panting movements. The movements of the paws were drawn inward by stimulating the region between points 1, 2 and 6; those of the eyelids and face were excited between 7 and 8; the side movements of the head and ear in the region of points of 9 to 14; and the movements of the mouth, tongue and jaws, with certain associated movements of the neck, being localized in the convolutions bordering on the fissure of Sylvius (B), which marks the division between the anterior and middle lobes of the cerebrum. Dr. Ferrier made similar experiments on dogs, rabbits and monkeys, but the details of the latter, we have not seen. The series of experiments made on the brain of the monkey is said to be the most remarkable and interesting, not only because of the variety of movements and distinctly expressive character of this animal, but on account of the close conformity which the simple arrangement of the convolutions of its brain bears to their more complex

disposition in the human cerebrum. It is premature to say what import we shall attach to these experiments, but they have established the correctness of the doctrine, advanced in ¶ 131, that thought,—the product of cerebral functions,—is a class of *reflex actions*. The cerebrum is not only the source of ideas, but also of those co-ordinated movements which correspond to and accompany these ideas. Certain cerebral changes—*physical antecedents*—call forth mental states and muscular movements which are mutually responsive. They indicate that various functions are automatic (not dependent upon the will), and as we have seen, experiments indicate that the electric current, when applied to the cerebrum, excites involuntary, reflex action. We cannot say how far these experimental results justify the phrenological classification of the faculties of mind, by establishing a *causative* relation between the physical and psychical states. The short and unsatisfactory account given, furnishes one fact which seems to support the claim of such a relation, viz: the apparent similarity between the motor center of the lips and tongue in lower animals, and that portion of the human cerebrum where disease is so often found to be associated with *Aphasia* (loss of voice). While this is by no means conclusive in establishing an hypothesis, it is a significant correspondence favoring it. These experiments are opening to scientists a new field for research, and we welcome their labors, hoping that they may yield an abundant harvest of discovery.

176. It is wonderful that nervous matter, can be so arranged, as not only to connect the functional processes of the body, but at the same time to be the agent of sensation, thought and emotion. It is amazing, that a ray of light containing vital stimuli, after traversing a distance of 91,000,000 miles, can, by falling upon the retina, not only produce a contraction of the pupil, but excite thoughts which analyze that ray, instantly spanning the infinitude of trackless space! The same penetrative faculties, with equal facility, can quickly and surely discern, the morbid symptoms of body and mind, become familiar with the indications of disease and classify them scientifically with the phenomena of nature. The symptoms of disease follow certain conditions as regularly as do the signs of development, and mind itself is no exception to this uniformity of nature. Thoughts

result from conditions and manifest them as evidently as the falling rain illustrates the effect of gravity. The knowing, and highest emotive faculties of man, depend upon this simple, but marvelously endowed, nervous substance, which blends the higher spiritual, with the lower physical processes. The functions of the body are performed by separate organs, distinguished by peculiar characteristics. To elucidate the distinctions between dissimilar mental faculties, we have assigned their functions, with characteristic names, to different regions of the head. As they unquestionably influence the bodily organs, we are sustained by physical analogy, in our classification. Our knowledge of the structure and functions of the nervous system is, as yet, elementary, and we are patiently waiting for scientists to develop its facts and verify them by experimental investigations and such researches, as time alone can bring to perfection. While real progress moves with slow and measured foot-steps, the inspirations of consciousness and the inferences of logic prepare the popular mind for cerebral analysis. No true system can contradict the facts of our inner experience; it can only furnish a more complete explanation of their relation to the bodily organs. It should be expected that such careful, or pains-taking experiments, as are necessary to establish a science, will be preceded by intuitive judgment and accredited observations, which may be, for a time, the substitutes of those more abstruse in detail.

177. We have, in accordance with popular usage, treated the organs of thought as having anatomical relations. The views which we have presented in this chapter may seem speculative, but the facts suggesting the theory, demand attention, and we have attempted to gather a few of the scattered fragments and arrange them in some order, rather than leave them to uncertainty and greater mystery. It is by method and classification that we are enabled to apply our knowledge to practical purposes. Possibly, to some, (especially the non-professional), an allusion to the fact that cerebral physiology contributes to successful results in the practice of medicine, may seem to be an exaggerated estimation. None, however, who are conversant with the facts connected with the authors experience, will so regard this practical reference, for the statement might be greatly

amplified, without exceeding the bounds of truth. Physicians generally undervalue the nervous functions, and overlook the importance of the brain as an indicator of the conditions of the physical system, because they are not sufficiently familiar with its influence over the bodily processes. Pathological conditions are faithfully represented by the thoughts, and words, when used to describe symptoms, become the symbols of feelings which arise from disease. How few physicians there are, who can interpret the thoughts and glean from the expressions and sentences of a letter, a correct idea of the morbid conditions which the writer wishes to portray! Each malady, as well as every temperament, has its characteristics, *and both require careful and critical analysis* before subjecting the patient to the influence of remedial agents.

178. In a treatise by Dr. Joseph R. Buchanan, entitled "Outlines of Lectures on the Neurological System of Anthropology" (a work which we hope to see revised and enlarged), are presented original ideas pre-eminently useful to the physician. His researches, and those of later writers, together with our own investigations, have greatly extended the author's philosophic and professional knowledge. It is by such studies and investigations that we have been prepared to interpret, with greater facility, the indications of disease, diagnosing accurately from symptoms, which have acquired a deeper significance in the light of cerebral physiology. We are enabled to adapt remedies to constitutions and their varying conditions, with a fidelity and scientific precision which has rendered our remedial success widely known and generally acknowledged. We annually treat thousands of invalids, whom we have never beheld, relieving them of their ailments. This has been accomplished chiefly through correspondence. If, for any reason, patients have failed to delineate their symptoms correctly, or given an obscure account of their ailments, photographs have been forwarded for our inspection, which have materially assisted in disclosing the nature of the disease. The cerebral conformation indicates the predisposition of the patient and enables us to estimate the strength of his recuperative energies. Thus we have a valuable guide in the selection of remedies particularly suited to different constitutions. Our treatment has been chiefly of chronic and nervous

diseases. The success attending our efforts, has been widely appreciated, not only in this, but in other countries where civilization, and its concomitants of refinement and luxurious habits, culture and effeminating customs, prevail. This fact is mentioned, not only as an illustration of the personal benefits actually derived from a thorough knowledge of the nervous system, but to show how generally and extensively these advantages have been shared by others.

179. A careful study of cerebral physiology leads us deeper into the mysteries of the human constitution, to the philosophical contemplation of the relations of mind to body and is a direct avenue to facts and conditions essential to individual improvement. Self-culture implies not only a knowledge of the powers of the mind, but also how to direct and use them for its own improvement, and he who has the key to self-knowledge, can unlock the mysteries of human nature and be eminently serviceable to the world. For centuries the mind has been spreading out its treasury of revelations, to be turned to practical account, in ascertaining the constitution, and determining better methods of treating disease. Since comparative anatomists and physiologists have revealed the structure of animals and the function of their organs, from the lowest radiate to the highest vertebrate, the physician may avail himself of this knowledge, and thus gain a deeper insight into the workings of man—the epitome of all nature. An intimate acquaintance with the physical, is a necessary preparation for the study of the psychical life, for it leads to the understanding of their mutual relations and reactions, both in health and disease.

180. Consciousness, or the knowledge of sensations and mental operations, has been variously defined. It is employed as a collective term to express all the psychical states, and is the power by which the soul knows its own existence. It is the immediate knowledge of any object whatever, and seems to comprise, in its broadest signification, both matter and mind, for all objects are inseparable from the cognizance of them. Hence the significance of the terms, Subject-consciousness and Object-consciousness. People are better satisfied with their knowledge of matter than their conceptions of the nature of mind.

THE NATURE OF MIND.

Since this subject is being discussed by our most distinguished scientists, we will conclude this chapter by introducing an extract from a lecture delivered by Prof. Burt G. Wilder, at the American Institute:

181. "There now remains to be disposed of, in some way, the question as to the nature and reality of mind, which was rather evaded at the commencement of the lecture. The reason was, that I am forced to differ widely from the two great physiologists whom I have so often quoted this evening. Most people, following in part early instruction, in part revelation, in part spiritual manifestations, and in part trusting to their own consciousness, hold, that the human mind is a spiritual substance which is associated with the body during the life of the latter in this world, and which remains in existence after the death of the body, and forms the spiritual clothing or embodiment of the immortal soul; and that the individual, therefore, lives after death as a spirit in the human form; that of this spiritual man, the soul is the essential being, of which may be predicted a good or evil nature, while the mind, which clothes it as a body, consists of the spiritual substances, affections and thoughts, which were cherished and formed during the natural life.

Together with the above convictions respecting themselves, most people, when thinking independently of theological sublimations, feel willing to admit that animals have, in common with men, fewer or more natural affections and thoughts which make up their minds, but that the inner and immortal soul, which would retain them as part of an individual after death of the body, is not possessed by the beasts that perish. In short, the vast majority of mankind, when thinking quietly, and especially in seasons of bereavement, feel well assured of the real and substantial existence of the human mind, independently of its temporary association with the perishable body.

But in antagonism to this simple and comforting faith, stand theological incomprehensibilities on the one hand, and scientific skepticism on the other. The former would have us believe that the soul is a mere vapor, a cloud of something ethereal, of which can be expected, nothing more useful than 'loafing around the

Throne;' while the latter asks us to recognize the existence of nothing which the eyes cannot see and fingers touch; to cease imagining that there is a soul, and to regard the mind as merely the product of the brain; secreted thereby as the liver secretes bile. Let us hear what the two leading nervous physiologists, of this country, have to say upon this point:

'The brain is not, strictly speaking, the organ of the mind, for this statement would imply that the mind exists as a force, independent of the brain; but the mind is produced by the brain substance: and intellectual force, if we may term the intellect a force, can be produced only by the transmutation of a certain amount of matter; there can be no intelligence without brain substance.'—FLINT.

'The mind may be regarded as a force, the result of nervous action, and characterized by the ability to perceive sensations, to be conscious, to understand, to experience emotions, and to will in accordance therewith. Of these qualities, consciousness resides exclusively in the brain, but the others, as is clearly shown by observation and experiment, cannot be restricted to that organ, but are developed with more or less intensity, in other parts of the nervous system.'—HAMMOND.

Thus do the two extremes of theology and science meet upon a common ground of dreamy emptiness, and we who confess our comparative ignorance are comforted by the thought that some other things have been 'hid from the wise and prudent and revealed unto babes.' Yet, while feeling thus, it must be admitted that the existence of spirit and of a Creator do not yet seem capable of logical demonstration. The denial of their existence is not incompatible with a profound acquaintance with material forms and their operations; and on the other hand, the belief in their existence and substantial nature, and in their powers as first causes, have never interfered with the recognition of the so-called material forces, and of the organisms through which they are manifested. At present, at least, these are purely matters of faith; but although the Spiritualist (using the term in its broadest sense as indicating a belief in spirits), may feel that his faith discloses a beauty and perfection in the union, otherwise imperceptible by him, there is no reason why this difference in faith should make him despise or quarrel with his materialist co-worker,

for the latter may do as good service to science, may be as true a man, and live as holy a life, although from other motives.

182. The differences between religious sects are mainly of faith, not of works, and the wise of all denominations are gradually coming to the conviction that they will all do God more service by toleration and co-operation than by animosity and disunion. And so I hold that, until the spiritualist feels himself able to demonstrate to the unbeliever the existence of spirit and of God, as convincingly as a mathematical proposition, there should be no hard words or feelings upon these points. For the present they are immaterial in every sense of the word; and so long as a materialist is sincere and earnest; so long as he bows to the facts and the laws of Nature, and deals with his fellow-men as he would be done by, so long will I work with him, side by side, knowing, even though I cannot tell him so, that whether or not, he joins me in this world, we shall meet in the other world to come, where his eyes will be opened, and where his lips will at least acquit me of bigotry and intolerance."

CHAPTER XV.

HUMAN TEMPERAMENTS.

183. Organization implies vital energy, as it can have no function without this living power. Antecedent to the initiation of life, is the sperm cell—the little casket which holds the latent vitality. The early history of this little world—the fertilizing cell—composed of infinitesimal molecules which contain the embryo powers of life, is only partially written. It is a fact authenticated by Faraday, that one drop of water contains, and may be made to evolve, as much electricity as under a different mode of display would suffice to produce a lightning-flash. Chemical force is higher than physical, and vital force is of a still higher order. Within the microscopic compass of the sperm cell are a great number of forces acting simultaneously, which require the answering conditions of a germ cell, and are so blended as to occupy a minimum of space. The union of these subtle elements through the agency of their physical, chemical and vital forces, constitutes the initiation of life. Functions disclose the fact that this life is a transitive process, its standstill, death. Elementary matter is transformed into chemical, and organic compounds, by natural forces, upon the cessation of which, it is liberated by nature's great destroyer, and reappears in the world of elements. Thus, man is formed out of the very dust by means of energies which reconstruct the crude, inert matter,—and to dust he returns when those energies cease.

184. As we enter upon the consideration of the temperaments, we should bear in mind one peculiarity of life, viz: that it combines, in a small space, many complex powers—definite life-forces—representing the conditions of parentage. In the physiology

of reproduction, there is a wonderful compounding and re-compounding of organic elements, which are again manifested by their transforming energies. Structures differ as widely, as their functions. So likewise do animals vary in their nature and organization, and individuals of the same species are, to a certain degree, unlike. Yet the characteristics, which have distinguished the races of mankind, are fundamental and faithfully maintained. Time does not obliterate them. Within race-limits are found enduring peculiarities, and although each individual is weaving out some definite pattern of organization, it follows the type of the race, as well as the more immediate antecedent conditions.

185. What then is a *Temperament* but a "mixing together" of these determining forces, a certain blending manifested in the constitution by signs, or traits which we distinguish as *character*. The different races of mankind must have their several standards of temperament, for the peculiarities of one are not fully descriptive of, and applicable to the other. Prof. Robley Dunglison defines temperament as follows:

"Those individual differences which consist in such disproportions of parts, as regards volume and activity, as to sensibly modify the whole organism, but without interfering with health."

Dr. J. R. Buchanan's definition is more concise: *"A temperament may be defined to be a peculiar and habitual condition of the human constitution, arising from the combined action of its organic forces."*

For its simplicity and scope, we prefer the following definition suggested by our friend, Orin Davis, M. D.: A TEMPERAMENT IS A COMBINATION OF ORGANIC ELEMENTS SO ARRANGED AS TO CHARACTERIZE THE CONSTITUTION.

186. This leads us to consider some of the elements, conditions and forces which give character to the organization. External circumstances supply necessary conditions to inward activity, for without air, food or sunlight all living animals would perish. Every-where, life is dependent upon conditions and circumstances—it is *not* self-generating. But the conditions of reproduction are very complex. External forces are transformed, and in turn, become vital, *i. e.*—formative powers. Development is a transmutation of physical and chemical forces

into vital energy. Although unable to compute the ultimate factors of life, yet we may illustrate their reproductive possibilities and results by comparing them with those of a lower order.

187. Animal structures are mainly composed of four elements, viz: oxygen, hydrogen, nitrogen and carbon. Other constituents enter into their composition, but are, comparatively, of incidental importance. From these four ingredients is fabricated an organism which manifests properties and marvelous functions. If the proportion of these chemical elements be varied, the organic compound will be changed; again, the proportions remaining the same, if the *grouping* of the elements be altered, different compounds will be produced, showing that the properties of organized substances depend upon the *molecular* constitution of matter.

188. Rising in the scale of organization, we observe that every variation of the physical and chemical processes implies a corresponding modification of the vital. This is verified by the peculiarities of the several races of mankind. Individual differences are likewise modifications of these processes. Dynamical or vital differentiation depends upon these modifications for the display of vital energy, and is always associated with molecular changes. But it should be borne in mind that an effect may not resemble its cause in *properties*, and the *qualities* of a chemical compound may be quite different from those of its constituents. Organic matter, although more complex, may exhibit properties, both like and unlike its constituent elements. Within certain boundaries, the elements seek to satisfy their affinities. We discover that there are limits between the genera of animals, as well as the races of mankind. Not less really, though perhaps not as absolutely, are there individual precincts within the sphere of the human temperaments, which cannot be passed.

189. If we cannot satisfactorily explain, we at least, begin to discover a reason for temperamental limitation. It is not designed to circumscribe healthful reproduction, but to serve as an effectual hindrance to abnormal deviations. We may state our belief in more positive terms, viz: that the temperamental variations are essential to *genesis* and *fertility*, and indispensable to *health* and *normal development*.

Every individual is susceptible to impressions which dispose to

action. Impressions which excite or increase this disposition, are called *Stimuli*. Vital change implies, (1). *Stimuli* and (2). *Susceptibilities*. The stimulus may not be furnished because the conditions on which it depends are wanting; again, susceptibility may exist at one time and not at another. Stimuli and susceptibility may be present in different degrees, but for the purpose of healthful reproduction they must not be impaired. ILLUSTRATION:—No single *proximate principle* is sufficient for the nutrition of the body, but, the food must contain substances belonging to each of the different groups. If an animal be fed exclusively upon albumen, although this substance constitutes the largest part of the bodily mass, yet exhaustion will rapidly follow, since the food does not contain all the essential, nutritive stimuli. Again, when the solids of the body have been wasted, they lose their susceptibility to stimuli, and the food does no good. Thus patients become emaciated during acute attacks of disease, upon the cessation of which they are too feeble to recover, simply because they have lost nutritive susceptibility.

190. We may apply this illustration to temperaments. The multifarious powers of the sperm cell require conditions for their manifestation. These vital potencies are an epitome of the parent constitution, and the STIMULI to evolution. The germ cell responds to that of the sperm, by furnishing the conditions, or SUSCEPTIBILITIES, and these constitute its germinal capacities. When a stimulus is communicated to these conditions, the response is the organization of tissues. Health and fertility are dependent upon this dualism of conditions—stimuli and susceptibility—upon the action and reaction of which, depends not only organization, but longevity; and the absence, or dormancy of these conditions, results in death.

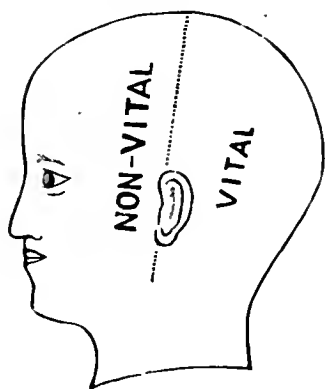
191. In inanimate forms, (as crystals), forces come to rest, but the very idea of life implies action, not cessation—vital change, not rest. Hence diversity of constitutions, and different temperaments—unlikeness in the proportion, strength and influence of organs and their functions—are essential in order that marriage may result in the reproduction of vigorous forces, for life is inaugurated between stimuli and responding susceptibilities. Their differentiation is determined by the natural dissimilarities of constitution, represented by the temperaments.

192. A loss of stimuli and susceptibility, implies corresponding loss of fertility; or, if reproduction be possible, the health of the progeny is impaired and life made brief. The fact that these powers are necessary to institute molecular changes, will not be questioned. Our present inquiry is concerning the conditions in which they originate. Certain organic conditions are favorable to the production of these powers, *i. e.*, we recognize causative relations depending upon physical changes, which may be increased or diminished. Certain operations induce an absolute waste of the vital powers, without returning any compensation, while others are followed by incidental benefits. Since these conditions are represented by the temperaments, we classify them as

VITAL AND NON-VITAL.

In the preceding chapter, we attempted to illustrate the unique blending of mind and body by means of the nervous system, and we now propose to exemplify the physical conditions of the organism by certain correspondencies, observed in the development and conditions of that system. If nature answers to mind in physical correspondencies, she will observe the same regularity in physical development. The simplest classification of the temperaments is represented in Fig. 77. Not only is mental activity dependent upon a chemical reaction

Fig. 77.



between the blood and the brain, but the development of the cerebrum depends upon its supply of blood. The growth of the intellect observes the same conditions that aided in the development of Vulcan's right arm, viz: waste and supply—disintegration and reformation of the tissues. He was the god of fire, who presided over the working of metals, and our modern iron forge, shows many an artisan, whose great right arm proclaims him to be a son of power as well as of fire. Thus the fer-

vid intellect while forging out its thoughts, increases in size and strength. The difference between the development of the two is this; that the exercise of the blacksmiths right arm quickens

the activities of all the bodily functions, whereas the employment of the intellect does not offer any healthful equivalent. Physical exercise is a hygienic demand, but intellectual employment excites no salutary influences, while it is constantly expending the energies of the blood. The emotions, likewise, make exhausting draughts upon nutrition to supply the waste of brain-substance, just as essentially as physical labor causes muscular change and demands reparation. One expends cerebral, the other, muscular substance. The one is healthful in its general tendencies, the other, comparatively, wasteful and destructive.

The intellectual faculties are, { DISINTEGRATING,
EXPENDING,
DERIVING.

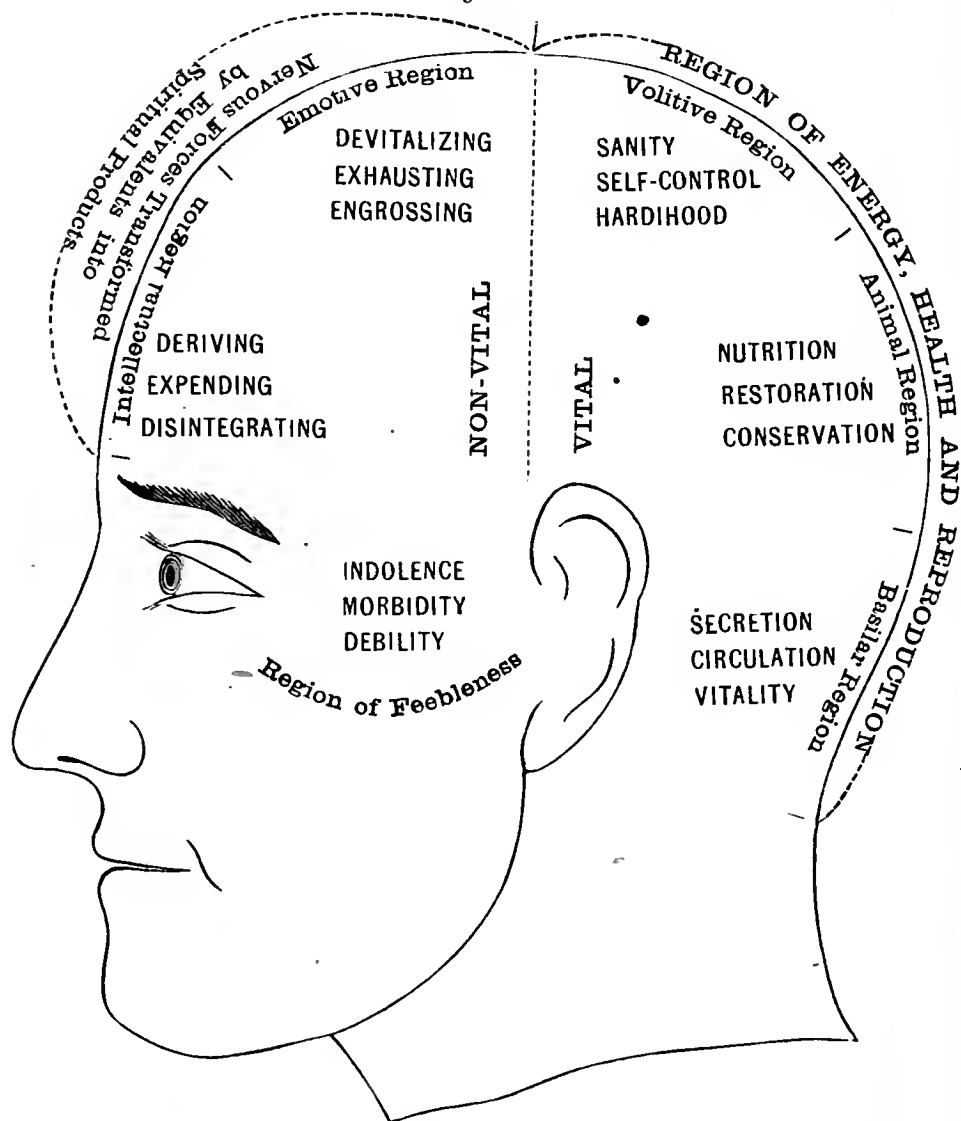
•
The emotive faculties are, { ENGROSSING,
EXHAUSTING,
DEVITALIZING.

These nervous forces are transformed into spiritual products.

193. The base of the anterior lobes of the brain belong to the Atonic Region—the source of those languid, deranging influences, which coincide with morbidity and disease. A disturbance of the corporeal organs, which especially influence this portion of the brain, naturally tends to the development of insanity or imbecility. Morel has traced, through four generations, the family history of a youth who was admitted to the asylum at Rouen while in a state of stupidity and semi-idiotcy; the following summary of his investigations illustrates the natural course of degeneracy as it extends through successive generations. First generation: Immorality, depravity, alcoholic excess and moral degradation, in the great-grandfather, who was killed in a tavern brawl. Second generation: Hereditary drunkenness, maniacal attacks, ending in general paralysis, in the grandfather. Third generation: Sobriety, but hypochondriacal tendencies, delusions of persecutions, and homicidal tendencies in the father. Fourth generation: Defective intelligence in the son. First attack of *mania* at sixteen; stupidity, and transition to complete idiotcy. Furthermore, a probable extinction of the family, for his generative functions were as little developed as those of a child of twelve years of age. He had two sisters who were both defective physically and morally, and were classed as imbeciles.

To complete the proof of heredity in this case, Morel adds that the mother had a child while the father was confined in the asylum, and that this child exhibited no signs of degeneracy. Statistics show that multitudes of human beings are born weighted with a

Fig. 78.



destiny against which they have neither the will nor the power to contend. They groan under the worst of all tyrannies—the tyranny of a bad organization, which is theirs by inheritance. We may represent the tendencies of the anterior portion of the brain by Fig. 78. The functional exercise of the anterior and superior portions of the cerebrum is *disintegrating* and *devitalizing*, while

the anterior and inferior portions coincide with mental and physical derangement, unless counteracted by opposing forces. It is therefore evident that in any organization, upon which is entailed a perverted or excessive action of this portion of the cerebrum, the tendencies are NON-VITAL, *i. e.*, unfavorable to fertility and physical health.

194. If the antagonizing regions are well developed, the tendencies are favorable to life.

The volitive organs are promotive of,	{	SANITY, TEMPERANCE, HARDHOOD.
The animal organs tend to,	{	NUTRITION, RESTORATION, CONSERVATION.
The basilar faculties instigate,	{	SECRETION, CIRCULATION, VITALITY.
The combined action of these faculties express,	{	ENERGY, HEALTH, REPRODUCTION.

If this portion of the brain indicates a full development, we say of such a temperament, it is VITAL, because the functions of its nerve-centers are favorable to evolution. As degenerations observe conditions, so endurance and development conform to certain laws, and it behooves all truthful enquirers, who believe not only in the progress of human intelligence, but in physical improvement from generation to generation, to ascertain and comply with these essential conditions. When the anterior and middle lobes of the brain are fully developed at their inferior surfaces, it is regarded as an insane temperament, *i. e.*, containing the germs of mental and bodily derangement. Both Morel and Dr. J. R. Buchanan have pointed out as an indication of insane neurosis, a conformation of the head which indicates lack of harmony, and oftentimes exhibits a malformation of the external ear.

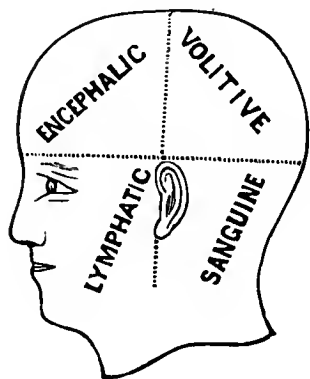
195. How shall we distinguish the combination of organic elements, if not by the manner in which they characterize the constitution? Every human being is distinguished by natural peculiarities, both mental and physical. These are indicated not only by the color of the eyes, hair and skin, and the mental expressions, but in the conformation and capabilities of the

corporeal system. The color, form, size and texture of a leaf indicate to the expert pomologist the nature of the fruit which the tree will bear, but how much more important to understand the harmonies of human development. If Prof. Agassiz could determine the form and size of a fish by seeing its scales, and Prof. Owen outline the skeleton of an unknown animal by viewing a portion of its fossil, why should not the physician understand the language of temperaments, as it opens to him the revelations of human development? The sculptor blends character with form, the artist endows the face with natural expression, the surgeon accurately traces the nerves and arteries, the physiognomist reads character, which the novelist delineates and the actor personates, because there are behind all these, facts, the materials wherewith to construct a science. In organization there are permanent forces which operate uniformly, thus revealing the order of nature.

THE TEMPERAMENTS CLASSIFIED.

196. We propose to speak of four constitutional variations entitled to separate consideration, viz: The LYMPHATIC, the SANGUINE, the VOLITIVE and the ENCEPHALIC. The brain controls all the voluntary, and modifies the involuntary functions of the body. It exerts special sway, *i. e.*,

Fig. 79.



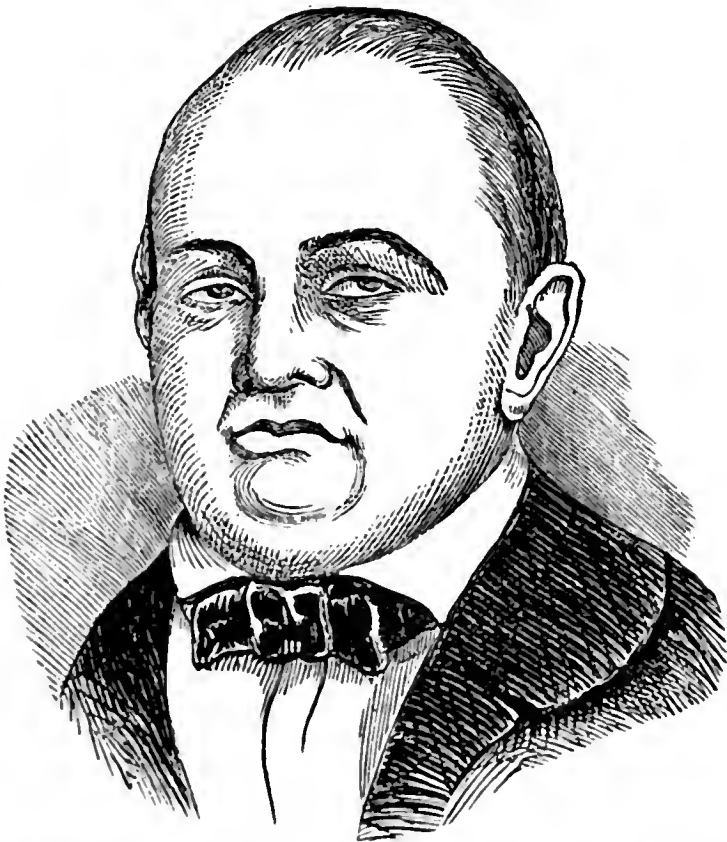
portions of the brain influence corresponding portions of the body. A particular cerebral development modifies the functions of all the bodily organs, and thus tempers the constitution. We therefore shall base our temperaments upon the mental and physiological characteristics, which are portrayed by cerebral development. Such an arrangement is illustrated by Fig. 79.

THE LYMPHATIC TEMPERAMENT.

197. The lymphatic temperament predominates when the anterior base of the brain and the middle lobe are developed so as to exert a preponderating influence over the bodily functions, The character of this influence we have described in cerebral physiology, (see ¶ 168). It is difficult to state precisely the normal

influences and neural forces which arise from these faculties, but it is evident that they are specially related to nutritive attraction, in opposition to volitive repulsion. It is only their excessive influence that produces worthless, miserable, morbid characters. A constitution marked by this development is indolent, relaxative and an easy prey to epidemics. This temperament is also characterized by a low grade of vitality or resistance. When life is sustained by the volitive powers, it is distinguished by a softness of the bodily structures, and the prevalence of lymph. The fact that all the organic functions are performed indolently, indicates lack of vital power. An excellent illustration of this temperament is found in Fig. 80 which represents a chinese gentleman of distinction. In the lower order of animals, as in

Fig. 80.



sponges, absorption is performed by contiguous cells, which are quite as effortless as in plants. Because of their organic indolence, sponges are often classed as vegetables. A body having an atonic or a lymphatic temperament is abundantly supplied

with absorbant organs, which are very sluggish in their operations. In lower animals, life is diffused throughout their structures. So in the lymphatic temperament, there seems to be less constructive energy, slower elaboration, and greater frugality. Lymph is a colorless or yellow fluid containing a large proportion of water. It is not so highly organized as blood, but resembles it, when that fluid is deprived of its red corpuscles. In the sanguine temperament, the blood-vessels are the most diligent, the lacteals next, and the lymphatics the least so, but in the lymphatic temperament, the order of this activity is reversed.

198. Dr. W. Byrd Powell observes that the lymphatic man has a large head, while the fat man has a small one, and also, that fat and lymph are convertible, one following the other, *i. e.*, "a repletion consisting of fat may be removed, and one of lymph may replace it, and *vice versa*." He could not account for these alternations. The bear goes into his winter quarters, sleek and fat, and comes forth in the spring just as plump with lymph, but losing this fat appearance soon after obtaining food. This simply indicates, that during lymphatic activity, the digestive organs are comparatively quiescent. But when these are functionally employed again, lymphatic economy is not required (see ¶ 60, 61). It is the duty of the lymphatics to slowly convert the fat by such transformation, that when it reaches the general circulation, it may there conjugate with other organic compounds, the process being aided by atmospheric nitrogen, introduced during the act of respiration. In this way it may become changed into those, chemically indefinite, artificial products, called proteinaceous compounds. This view is supported by the disappearance of fat as an organized product in the lymph of the lymphatic vessels, indicating that such transformation has occurred. In this way, by coupling with other organic compounds, it shows how the lymph may serve as a weak basis for blood; that atmospheric nitrogen is so employed in forming these artificial compounds, is indicated by the fact that there is sometimes less detected in arterial, than in venous blood.

199. This temperament is indicated by lymphatic repletion, soft flesh, pale complexion, watery blood, slow and soft pulse, oval head, broad skull, showing breadth at its base. Fig. 81 illustrates this temperament combined with sanguine elements.

In all good illustrations of this temperament, there is a breadth of the anterior base of the skull extending forward to the cheek bones. There is likewise a corresponding fulness of the face, under the chin, and in the neck, denoting a large development of

Fig. 81.



Judge Green, of the United States Court.

the anterior base of the cerebrum. The cerebral conformation of the Hon. Judge Green, indicates mental activity, and we have no reason to suppose that lymph was particularly abundant in his brain.

200. While this description of the lymphatic temperament is correct, when illustrated by the civilized races of men, who are accustomed to luxury, ease and an abundance of food, it does not apply with equal accuracy to the cerebral organization of the American Indian. His skull, though broad at its anterior base, and high and wide at the cheek bones, differs from the European in being broader and longer behind the ears. Fig. 82 is an excellent representation of a noted North American Indian. This portrait is taken from Samuel R. Well's admirable work entitled "New Physiognomy," which contains more than a

thousand faithful portraits of distinguished men and women.

Fig. 82.

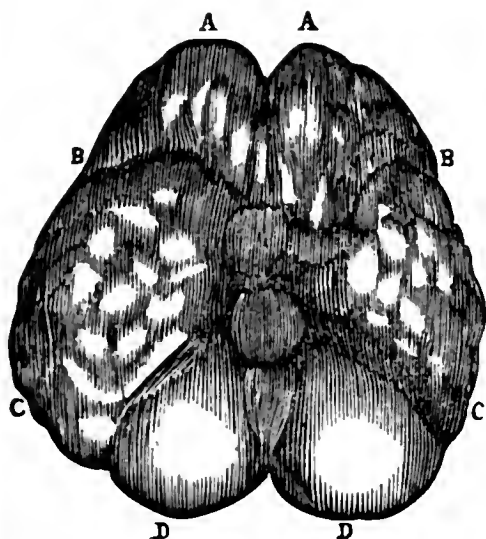


While a great breadth of the base of the brain indicates morbid susceptibilities, yet these, in the Indian, are opposed by a superior height of the posterior part of the skull. Consequently, he is restless, impulsive, excitable, passionate, a vagrant upon the earth. The basilar faculties however are large, and he is noted for instinctive intelligence. His habits alternate from laziness to heroic effort, from idleness and quiet to the fierce excitement of the chase, from vagabondism to war, sometimes indolent and at other

times turbulent, but under all circumstances, irregular and unreliable. In this case, lacteal activity is greater than lymphatic, as his nomadic life indicates. Nevertheless, he manifests a morbid sensibility to epidemic diseases, especially those which engender nutritive disorders and corrupt the blood. Figs. 83 and 84 represent the brain of an American Indian, and that of a European, and show the remarkable difference between their anatomical configuration. Evidently it is a race-distinction. Observe the greater breadth of the brain of the Indian, which according to cerebral physiology indicates full alimentiveness, indolence, morbid sensibility, irritability and profligacy, but also note that it *differs materially in the proportion of all its parts*, from the European brain. Judging of the character of the Indian from the foregoing representation, we should say, that he was cunning, excitable, treacherous, fitful, taciturn or violently demonstrative. His constitution is very susceptible to diseases of the bowels and blood. His appetite is ungovernable, and the love of stimulus, strong. Syphilitic poison, small-pox, and strong drink will annihilate all these tribes sooner than gunpowder. Their physical traits of constitution are no less contradictory than their extremes of habit and character, for while there is evidence of lymphatic elements, yet it is contradicted by the color of the hair, eyes and skin. This peculiar organization cannot blend in

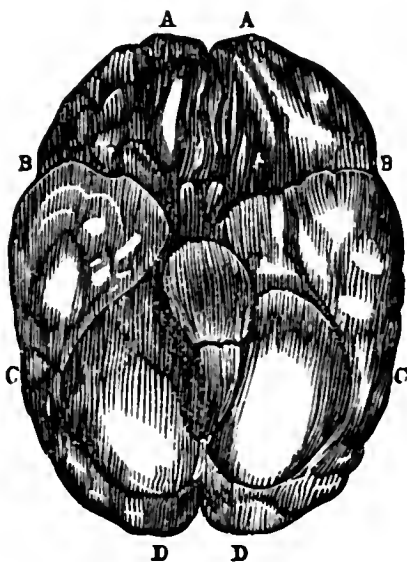
healthful harmony with that of the European, and furthermore, it

Fig. 83.



American Indian.

Fig. 84.



European.

(FROM MORTON'S CRANIA AMERICANA.)

In the American Indian, the anterior lobe, lying between *A A* and *B B*, is small, and in the European it is large, in proportion to the middle, lying between *B B* and *C C*. In the American Indian, the posterior lobe, lying between *C C* and *D D*, is much smaller than in the European. In the American, the cerebral convolutions on the anterior lobe and upper surface of the brain, are smaller than the European. If the anterior lobe manifest the intellectual faculties—the middle lobe, the propensities common to man with the lower animals—and the posterior lobe, the conservative energies, the result seems to be, that the intellect of the native American will be comparatively feeble—the European, strong; the animal propensities of the Indian will be great—in the European, more moderate; while reproduction, vital energy and conservation of the species of the Indian is not as great as with the European. The relative proportions of the different parts of the brain, differ very materially.

shows that race-temperaments require separate and careful analytic considerations.

201. By physical culture and regulation of the habits, the excessive tendencies of this temperament may be restrained. Solid food should be substituted for a watery diet. If it be limited in quantity, this change will not only diminish the size, but increase the strength of the body. The body should be disciplined by daily percussion (gently and rapidly repeating the blows upon its surface), until the quasi-constructed cells which are too feeble to resist this treatment, are broken and replaced by those more hardy and enduring. Add to this treatment brisk, dry rubbing, calisthenic exercises, and daily walks which should

be gradually extended. Continue this treatment for three months, and its improving effects upon the temperament will surprise the most skeptical; if continued for a year, a radical alteration will be effected, and the hardihood, health, and vigor of the constitution greatly increased.

202. This temperament may be improved physiologically, by being blended with the sanguine and volitive, and the offspring will be stronger, the structures firmer, the organization more dense. Nutrition, assimilation and all the constructive functions will be more energetic in weaving together the cellular fabric of the body. The sanguine temperament will add a stimulus to the organic activities, while the volitive will communicate manly, brave and enduring qualities. When this temperament is united with the encephalic, if it does not result in barrenness, it adds *expending* and *exhaustive* tendencies to the *enfeebled* ones already existing, and consequently the offspring will lack both physical power and intellectual activity.

203. The peculiarities of this temperament are observable in the diseases which characterize it. It is specially liable to derangements of digestion, nutrition and blood-making. The blood is easily poisoned, by morbid products formed within the body, as well as by those derived from the body of another. This is seen in purulent infection of the blood, sometimes called *pus-blood*, because inflammation in some part of the system has terminated in pus (matter). When this is absorbed, it acts upon the blood as a *poison*. This is most likely to occur when the vital powers are low and the energies weak, for then the fibrine decreases, the red globules diminish in number, the circulation becomes languid, the pulse grows fluttering and weak, and this continues until death ensues. This poisoned condition of the blood is technically termed *pyæmia*. An individual of this temperament is more easily destroyed than any other by the poison of syphilis, small-pox and other contagious diseases. If the blood has received any hereditary taint, the lymphatic glands not only reproduce it but oftentimes increase the virulency of the original disease. This temperament indicates a necessity for the employment of stimulating, alterative and anti-septic medicines. The torpid functions need arousing, the blood wants depuration, *i. e.*, the elimination of corrupting matter, and the

system requires vegetable alteratives to produce these salutary changes. The secretions need the correcting influence of cleansing remedies for the purification of the blood.

Persons of this temperament are more liable to absorption of pus and other morbid products within the body, which are in a state of decomposition, producing a *putrid* infection of the blood, technically termed, *septicæmia*. The fatal results which so suddenly follow child-bed fever are thus produced. This kind of poisoning sometimes takes place by the absorption of decomposed exudation in diphtheria and, though rarely, from matter collected in the lungs. Whenever the absorption of poison does take place, fatal consequences speedily follow.

204. This passive temperament is more liable to sink under acute attacks of disease, especially alimentary disorders, such as diarrhœa, dysentery and cholera. It quickly succumbs to their prostrating effects, as depression, congestion and fatal collapse rapidly succeed each other. Venesection and harsh purgatives are contra-indicated, and the physician who persists in their employment, kills his patient. How grateful are warmth, and stimulating medicines! The most powerful, diffusible and nervous stimulants are required in cholera, when the system is devastated by the disease, as the plain is laid waste by the fierce tornado. Without a critical knowledge of the morbid tendencies of such a temperament, a physician, although loaded down with diplomas and degrees, is illy prepared to treat his patients with any probable success.

THE SANGUINE TEMPERAMENT.

205. Lymph is the characteristic of the lymphatic temperament, and its specific gravity, temperature and standard of vitality are all lower than that of red blood. In the sanguine temperament all the vital functions are more active, the blood itself has a deeper hue, its corpuscles carry more oxygen, the complexion is quite florid, and the arterial currents impart to every faculty a more hopeful vigor. The blood-vessels are the most active absorbents, eagerly appropriating nutritive materials for the general circulation, while respiration adds to it oxygen, that agent which makes vital manifestation possible. This temperament exhibits greater sensibility, the conceptions are quicker,

the imagination more vivid, the appetite stronger, the passions more violent, and there is to be found every display of animal life and enjoyment.

206. A full development of the basilar faculties, indicated by an unusual breadth and depth of the occipital base of the brain, accompanies this temperament. Its cerebral area includes the posterior and inferior portions of the cerebrum, the entire cerebellum, and that part of the medulla which connects with the spinal cord, all of which sustain intimate relations to vital conditions. Accordingly, such a development indicates good digestion, active nutrition, vigorous secretion, large heart and lungs, powerful muscles and surplus vitality. The violent faculties, such as Combativeness, Destructiveness, Restlessness, Locomotion and Hatred are natural adjuncts, and their excess tends to sensuality and crime. They are not only secretive, appropriative, selfish and self-defensive, but when redundant are aggressive and tend to destructiveness, the gratification of animal indulgence, intemperance and debauchery. The correspondence between the cerebral conformation and the physical development, is very obvious. Lower orders of animals possess these faculties, and their spontaneous exhibition is called instinct. They possess the acquisitive, destructive and propagating propensities, which lead them to provide for their wants, and secure to themselves a posterity. The exercise of their bodies causes a continual waste which demands incessant reparation, and they are governed measurably by these animal impulses.

207. All of these lower psychical faculties have a physiological significance. Acquisitiveness expresses *functionally*, assimilation, accretion, animal growth, and tends to bodily repletion. Secretiveness expresses concealing, separating, withdrawing and functionally signifies secernent action. Secretion is separating and *withdrawing* from the blood some of its constituents, as mucus, bile, saliva, etc. This latter process indicates complex conditions of organization, so that the higher and more involved the texture, the greater the number of secretory organs. Unrestrained selfishness, while it naturally conserves the individual interests, in its ultimate tendencies, is the very essence of human depravity. Without qualification, clearly, it is crime, for blind devotion to an individual must be in utter disregard of the good

of others. The ultimate tendencies of these faculties are, therefore, criminal.

Depress the function of acquisitiveness, and it represents avariciousness. Lower secretiveness and selfishness, and they become cunning and profligacy, desperation and crime. Their functional reduction tends to produce physical disorder and violent disease. All of these faculties are vehement, contending, thriving by opposition. Life itself has been called a forced state, because it wars with the elements it appropriates, and transmutes their powers into vitality.

208. A slight preponderance of the sanguine elements, is very favorable to the constitution. We find many men and women of this temperament, who are models of character and of organization. George Washington is an excellent illustration. The impression that his presence made upon the Marquis of Chastellet, is given in the following words: "I wish only to express the impression General Washington has left on my mind; the idea of a perfect whole, brave without temerity, laborious without ambition, generous without prodigality, noble without pride, virtuous without severity." Gen. Scott, Lord Cornwallis, Dr. Wistar, Bishop Soule, John Bright, M. P., Jenny Lind Gold-

Fig. 85.



smidt and Dr. Gall, are good representatives of this temperament. Fig. 85 is an excellent illustration of it, finely blended and well balanced in the person of Madame de Stael. This temperament requires less tonics and stimulants than the lymphatic, and the mercurial preparations are contra-indicated in both. This constitution is best able to restore vital losses, and has borne remarkably well, the sanguinary practice of blood-letting, which was formerly so popular with the medical profession. It is a vital temperament, *i. e.*, combines favorably with all the others, and

better adapts itself to their various conditions. Some regard it as the best adjusted one in all its organs and tissues, and as the most satisfactory and serviceable.

209. Excess of nutrition — rich blood — tends to plethora, to animal indulgence and gross sensuality. Not only do the propensities rouse desire, but excite the basilar faculties, and they portray their wants in the outlines of the face, mould the features to their expression, and flash their significance from the eye. Who need mistake the picture of sensuality represented by Fig. 86.

Fig. 86.



It is enough to shock the sensibility of a dumb animal, and to say that such a face has a beastly look, is an unkind reflection upon the brute creation. A large neck and corresponding development of the occipital half of the brain indicate nervous energy, yet nutrition is not absolutely dependent upon it, for the nutritive processes are active before a nervous system is formed. The lower faculties of the mind exert a remarkable influence over nutrition, secretion and the molecular changes incident to life. Anger, or fear, may transmute the mother's

nourishing milk into a virulent poison. The following incident taken from Dr. Carpenter's Physiology, illustrates this statement: "A carpenter fell into a quarrel with a soldier billeted in his house, and was set upon by the latter, with his drawn sword. The wife of the carpenter at first trembled from fear and terror, and then suddenly threw herself furiously between the combatants, wrested the sword from the soldier's hand, broke it in pieces, and threw it away. During the tumult, some neighbors came in and separated the men. While in this state of strong excitement, the mother took up her child from the cradle, where it lay playing, and in the most perfect health, never having had a moment's illness; she placed it to her breast, and in so doing,

sealed its fate. In a few moments the infant left off nursing, became restless, panted and sank dead upon the mother's bosom. The physician, who was instantly called in, found the child lying in the cradle, as if asleep, and with its features undisturbed; but all his efforts at restoration were fruitless. It was irrecoverably gone. In this interesting case, the milk must have undergone a change, which gave it a powerful sedative action upon the susceptible nervous system of the infant."

210. Anxiety, irritation, hatred, all tend to vitiation of the disposition, and bodily functions, perverting the character and constitution at the same time. Depravity of thought and of secretion, go together. Degradation of mind and corruption of the body, are concomitants. There is a very close affinity between mental and moral perversion, and physical prostitution, of which fact, too many are unconscious. Nervous influence preserves the solubility of the blood and facilitates its circulation. We learn this from experiments, for it appears that simple *arrestment* of this influence favors the coagulation of the blood in its vessels; clots being found in its trunks within a few minutes after the brain and spinal marrow are broken down. Habitual constipation is the source of many ills. Perversion of the functions of the stomach, and of the circulation of the blood, produce general disaster.

211. Diseases which characterize this temperament are acute, violent or inflammatory, indicating repletion, and active congestion; intense inflammation, burning fevers, severe rheumatism, a quick, full pulse, great bodily heat and functional excitement are its morbid concomitants. These diseases will bear thorough depletion of the alimentary canal — active hydragogue cathartics fulfilling the indication. Nervous sedatives, capillary tonics and anodynes are also essential, to modify, change and control the circulatory forces. Violent disturbance must be quelled, and the remedial police force required for this duty will include Veratrum, Ipecac, Digitalis, Opium, Lobelia, Conium, and Asclepias; the latter is usually the most serviceable of them all for encouraging the redistribution of the blood. We would not omit from this class of remedies Aconite, Gelseminum, the Calabar Bean, Alkaline treatment, Bathing, etc., as well as various disinfectants, which arrest the action of morbid materials in the blood. While

equalizing the circulatory fluids, restoring the secretions and thoroughly evacuating the system and thus endeavoring to remove disturbing causes, we find that the conditions of this temperament are exceedingly favorable for restoration to health. True, many chronic diseases are obstinate, dogmatically set and desperately resisting, yet a course of restorative medication persistently followed, promises a fortunate issue in this elastic and tractile temperament.

212. Hygienic management of the lymphatic and sanguine temperaments consists in the vigorous toning of the former, while restraint of the latter will greatly exempt it from the anxieties, contentions and vexations which excite the mind, disturb the bodily functions, and end in chronic disease. People of the latter organization love mental and physical stimulus, are easily inflamed by passion, and their excitability degenerates into irritability, succeeded by serious functional derangements, which prematurely break down the individual with inveterate, deep-seated disorder. Serenity, hope, faith, as well as firmness are natural hygienic elements. It is a duty we owe the health to promptly relinquish a business that corrodes with its cares, and depresses with its increasing troubles. Constant solicitude, and the apprehension of financial disaster, will frustrate the bodily functions, disconcert the organic processes and lead to mental aberration as well as physical degeneracy. Melancholy is chronic, while despair is acute mania, whose impulses drive desperately towards self-destruction. The chronic derangement of these organs exerts with less force the same morbid tendency, subversive of life. Hence the necessity for exercising those hygienic and countervailing influences born of resolution, assurance and confident trust, and the belief in which, strengthens all of the vital operations.

213. Doubtless, this temperament is the source of the reproductive powers. It is the corner stone, essential to the foundation of all other temperaments. Formerly, it was the supposition that the cerebellum was the seat of sexual instinct, but latterly, this is greatly discredited. The fact appears, that an ample development of the posterior base of the cerebrum and the cerebellum indicates nutritive activity, which is certainly a condition most favorable to the display of amateness. In a double sense then.

this temperament is a vital one; both by nutritive repletion, and by reproduction. It is the blood-manufacturing, tissue-generating, and body-constructing temperament, causing growth to exceed waste, and promptly repairing the wear which follows continual labor.

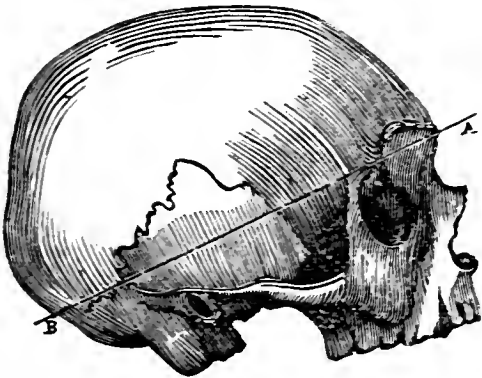
While the sleazy structures of the lymphatic temperament are favorable to the functions of transudation, exhalation and mutual diffusion of liquids, the sanguine, as its name indicates, is adapted to the circulation of the blood, to nutrition and reproduction. Although the former temperament does not move the world by its energies, or impress it vividly with its wisdom, yet the latter, is more enthusiastic, enjoyable and quickening. Each temperament, however, possesses salient qualities and advantages.

THE LIFE LINE.

214. Dr. W. Byrd Powell, in his work on "The Human Temperaments," announces the discovery of a measurement, which indicates the tenacity of life, and the vital possessions of the individual. He observed that some persons of very feeble appearance, possess remarkable powers of resistance to disease and continue to live until the machinery of life, literally wears out. Others, apparently stronger and more robust, die before the usual term of life is half completed. He also noticed, that some families were remarkable for their longevity, while others reached only a certain age, less than the average term of life, and then died. He remarked also, that some patients sank under attacks of disease, when to all appearances, they should recover, and that others recovered, when, agreeably to all reasonable calculations, they ought to die. He therefore, not only believed that the duration of human life was more definitely fixed by the organization than was supposed, but he set himself the task to discover the line of that life and the measure of its duration. He made a distinction between vital vigor, and vital tenacity, viz: *vital vigor* is equivalent to the condition of vitality, which is indicated by breadth of the brain, corresponding to sanguine development; and *vital tenacity*, measured by the *depth* of the brain's base. Dr. Powell was an indefatigable student of nature, and followed this theory through years of observation, and in the measurement of hundreds of heads of

living persons, in order to verify the correctness of the hypothesis. His method of measuring the head may be stated as follows: He drew a line from the occipital protuberance on the back of the head, to the junction of the frontal and malar bones, extending it to a point above the center of the external orbit of the eye, near the termination of the brow. Now measure the distance between this line and the orifice of the ear, and we have the measure indicating the vital tenacity or duration of life. The accompanying Fig. 87 is a representation of the skull of Loper, who was hung for murder, in Mississippi. He might have attained

Fig. 87.



a great age, had not his violent and selfish faculties led him into the commission of crime. In this illustration, B represents the occipital protuberance, and A the junction of the frontal and malar bones at the external angle of the eye. The distance between this line (A B) and the external orifice of the ear, is the measure of the life-

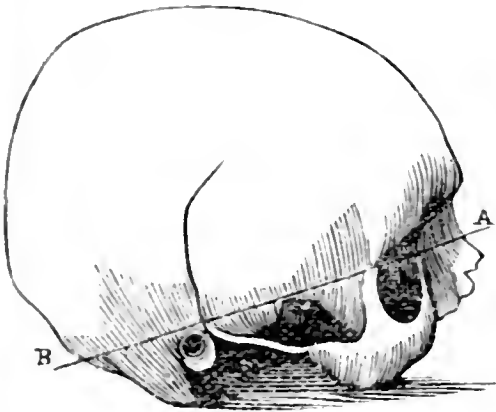
force of Loper, at the time of his execution.

215. The tenacity of an individual's life, Dr. Powell determined by the following scale of measurements. Three-fourths of an inch from the orifice of the ear to the life-line, is the average length in the adult, and indicates *ordinary* tenacity of life. As the distance decreases to five-eighths, one-half, three-eighths, vital tenacity diminishes. If the measure is more than three-quarters of an inch, it denotes great vital endurance, excellent recuperative powers, and is indicative of longevity. If it measures less than a half inch, it shows that the constitution has a feeble, uncertain hold upon life, and an acute disease is very likely to sunder the vital relations.

216. Dr. Powell contended that, "life force and vital force are not equivalent terms, because much more vital force is expended upon our relations, than upon our organization in the preservation of life. Every muscular contraction, every thought and every emotion requires an expenditure of vital force." He taught that we *inherit* our life force, or constitutional power, and that

we can determine by this *life-line*, the amount which we so received. And he believed that it can be improved by *intellectual* effort, just as we can improve vital force by *physical* exercise. Fig. 88 represents the skull of a man who died, at nearly the same age as Loper, of consumption, in the Charity Hospital, at

Fig. 88.



New Orleans. The measurement of the skull in this case, gives a space between the life-line and the orifice of the ear, of one-sixteenth of an inch, showing that the consumptive had lived the full term of his life. Dr. Powell contended that the depth of a man's brain may be increased after maturity; muscular effort, mental activity, and a sense

of responsibility being favorable to longevity, while idleness and dissipation are adverse to it. In justice to the Doctor, we have stated fully his theory and his method of determining the hardihood and endurance of the constitution, and we bespeak for it a candid examination. Without doubt it embodies a good deal of truth. Hereafter we shall endeavor to indicate by cerebral configuration, a better system of judging of the vital tenacity, hardihood and constitutional energies, both inherited and acquired.

THE VOLITIVE TEMPERAMENT.

217. By reference to Figs. 71 and 79, the reader will be able to locate the region of the volitive faculties, previously described under the generic term, WILL, ¶ 164. This temperament is characterized by ambition, energy, industry, perseverance, decision, vigilance, self-control, arrogance, love of power, firmness and hardihood. These faculties express concentration of purpose, and their *functional* equivalents are power of elaboration, constructiveness, condensation, firmness of fiber, compactness of frame and endurance of organization. The pulse is full, firm and regular, the muscles are strong and well marked, hair and skin dark, the temporal region is not broadly developed, the face angular, its lines denoting both power of purpose and strength

of constitution, with resolution and hardihood blended in the expression. The volitive temperament is distinguished by height of the posterior superior occipital region, called the crown of the back head, and by corresponding breadth from side to side. The rule given by Dr. J. R. Buchanan applies not only to the convolutions, but to the general development, of the brain, viz: *length gives power, or range of action, and breadth gives copiousness, or activity of manifestation.* Thus a high, narrow back head indicates firmness and decision, but it is not as constant and copious in its manifestation as when it is associated with breadth. An individual having a narrow, high head, may determine readily enough upon a course of action, but he will require a longer period for its completion, than one whose head is both high and broad. Such a cerebral conformation cannot accomplish its objects without enjoying regular rest, and maintaining the best of habits. Breadth of this region of the brain indicates ample resources of energy, both psychical and functional. It denotes greater vigor of constitution, one that continually generates volitive forces, and its persistency of purpose may be translated as functional tenacity. Cerebral retentiveness signifies physical cohesiveness, and psychological adhesiveness is physiological constancy, *i. e.*, inflexibility of will and purpose impart their tenacious qualities to every bodily function. These are really the governing faculties, not only directing the voluntary functions, but exerting a vigorous and efficient influence upon the ganglionic nervous system. The *will* to recover is often far more potent than medicine, and we have many times seen its power in restraining the ravages of disease. These energetic faculties, located at the upper and posterior part of the head, are the invigorating, or TOXIC elements of the constitution, imparting hardy, firm, steady and efficient influences, checking excess of secretion, repressing dissipation, and tending to maintain self-possession, as well as healthy conditions of life. We present the likeness of President Ulysses S. Grant (see Fig. 89) which shows a well balanced organization, with sufficient volitive elements to characterize the constitution.

218. The old name — *Bilious* Temperament — might possibly be retained in deference to long usage, did it not inculcate a radical error. Bilious, is strictly a medical epithet, relating to

bile, or to disorders arising in consequence of its superabundance,

Fig. 89.



and it was applied originally to distinguish a temperament supposed to be characterized by a predominance of the liver and biliary secretion. Physicians well understand now, that a copious biliary secretion has a prostrating effect upon the constitution, and that a predominance of the liver is associated with the lymphatic temperament. In the volitive temperament, the firm, tenacious, toning and restraining faculties, *repress*, rather than *encourage* biliary secretion, and hence the necessity for administering large doses of

cathartics, and using cholagogue (bile-driving) medicines. When the system is surcharged with bile and the liver needs a powerful stimulus to excite it to duty, then it is that we use these agents in order to obtain necessary relief, often attended however, with prostrating effects. In this temperament, there is moderate hepatic development, lack of biliary activity, deficiency of the secretion of bile and a sluggish, portal circulation (see ¶ 54). Therefore to apply the term bilious, to this temperament, is not only unreasonable and a misnomer, but it is calculated to mislead as to facts. The condition of the bowels is generally constipated, the skin dark and sometimes sallow, indicating hepatic torpor. For these and other obvious reasons, we dismiss the word *bilious*, and substitute one which is more characteristic.

219. We will not dwell upon the volitive as *psychical* organs, except to show that when their influence is transmitted to the body, they act as *physiological* organs, and thus illustrate that all parts of the brain have their physiological as well as mental functions. When President Andrew Jackson uttered with terrible emphasis the memorable words, "BY THE ETERNAL," the effect was like a shock from a galvanic battery, thrilling the cells

in his own body, and palsying with fear, every one in Calhoun's organization. This is an illustration of the power, or range of action of these faculties. Breadth or copiousness, is illustrated

Fig. 90.



in Gen. Grant's reply, "I PROPOSE TO FIGHT IT OUT ON THIS LINE, IF IT TAKES ALL SUMMER." Such a temperament has a profusion of constitutional power, great durability of the life-force, and in our opinion, the combined height and breadth of this region,

correctly indicate the natural hardihood of the body and its *retentiveness of life*. No one need doubt its influence upon the sympathetic system, and through that system, its power over absorption, elaboration, nutrition, circulation, assimilation and secretion, as well as the voluntary processes. Mental hardihood seems wrought into concrete organization. It checks excess of glandular absorption, restrains the impulses of tumultuous passion, tones and regulates the action of the heart, and helps to weave the strands of organization into a more compact fabric. The toning energies of the volitive faculties are better than Quinine to fortify the system against *miasms*,—infectious emanations from living or dead bodies—against *malaria*,—morbific agents arising from the earth, stagnant water, etc.,—and they co-operate with all tonic remedies in sustaining organic action, and durably augmenting the tension of all the solids. Fig. 90 represents Prof. John Tyndall, the eminent chemist, whose likeness indicates volitive innervation, showing great strength of character and of constitution; he is an earnest, thorough, and intense mental toiler, ambitious but modest, brilliant because persevering, diligent in scientific inquiry, who follows the star of truth, whithersoever it may lead him. The expression of his countenance indicates his honest intentions, and displays strength of conscientious purpose; his physical constitution may be correctly interpreted in all of its general characteristics by the analysis of his energetic temperament, the great secret of his strength and success.

220. We desire to offer one more illustration of a marvelous blending of this temperament with large mental and emotional faculties. Fig. 91 is a representation of the martyred President, Abraham Lincoln. During an eventful career, his temperament and constitution experienced marked changes, and while always distinguished for strength of purpose and corresponding physical endurance, he was governed by noble, moral faculties, manifesting the deepest sympathy for the down-trodden and oppressed, blending tenderness and stateliness without weakness, exhibiting a human kindness and displaying a genuine compassion, which endeared him to all hearts. He was hopeful, patriotic, *magnanimous* even, while upholding the majesty of the law and administering the complicated affairs of government. The balances of

his temperament operated with wonderful delicacy, through all

Fig. 91.



the perturbing influences of the rebellion, showing by their deflection that he was never for a moment turned aside from the great end he had in view, viz: the protection and perpetuation of republican liberty. His life exhibited the efferent innervations, or out-going impulsions of equity, liberty, and a sublime, moral heroism, elements of character which hallow his name, and embalm it in everlasting remembrance.

221. We have treated the brain, not as a mass of organs radiating from the medulla oblongata as their real center (which is simply a trophic center), but as two cerebral masses, each of which is developed, as the radii of a sphere, around the great ventricle. We have freely applied an easy psychical and physiological nomenclature to the functions of its organs, knowing that there is no arbitrary division of them by specific number, for the cerebrum, in an anatomical sense, is a single organ. The doctrine of cerebral unity is true, and the doctrine of its plurality of function, is true also. Whatever effect an organ produces when acting in entire predominance, is regarded as the function of that organ and is expressed by that name. Although our names and divisions are arbitrary and designed for convenience, yet they facilitate our consideration of psychical, and their corresponding physiological, functions. Every cerebral manifestation denotes a *psychical* organ, and in proportion as these acts are transmitted to the body, it becomes a *physiological* organ. We have ventured to repeat this proposition for the sake of the non-professional reader, that he may be able to distinguish

between the two results of the manifestation of one organ. The transmission of the influence of the brain into the body, enables the former to act physiologically, whereas, if its action were confined within the cranium, it would only be psychological. In the language of Prof. J. R. Buchanan, "every organ, therefore, has its mental and corporeal, its psychological and physiological functions — both usually manifested together — *either capable of assuming the predominance.*" We have already seen to what degree the *Will* operates upon the organism, or how (to express it strictly in religious dialect) "the soul imparts special energy to single organs, so that they perform their functions with more than usual efficiency," and thus resist the solicitations of morbid agents. Doubtless our best thoughts are deeply tinged by the healthful or diseased conditions of such organs as the stomach, the lungs, the heart, the nerves or even the muscular and circulatory systems, and these impressions when carried to the sensorium, are reflected by the thoughts, for reflex action is the third class of functions, assigned to the cerebrum (see ¶ 131). These reflex actions are, either hygienic and remedial, or morbid and pernicious. Hence, it is philosophical not only to interpret the thoughts as physiological and pathological indications, but to consider the cerebrum as exerting real hygienic and remedial forces, capable of producing salutary, reparative and potently restorative effects. When an engine carries more steam than can be advantageously employed, it is subjected to unnecessary and injurious strain, and is weakened thereby; so when the body is overtasked by excessive pressure of the volitive faculties, it is prematurely enfeebled and broken down. There are many individuals who need to make use of some sort of safety valve to let off the surplus of their inordinate ambition; they need some kind of patent brake whereby to slacken their speed of living; they should relieve the friction of their functional powers by a more frequent lubrication of the vital movements, and by stopping, for needed refreshment and rest, at some of the many way-stations of life.

THE ENCEPHALIC TEMPERAMENT.

222. The encephalic temperament is distinguished by prominence and breadth of the forehead, or by a full forehead associated

with height and breadth at its coronal junction with the parietal bones, and extending toward the volitive region. (See Fig. 10, the space between 1 and 2 represents the coronal region, 1 indicating the frontal bone, and 2 the parietal). Prominence and great breadth of the forehead display *analytical*, *i. e.*, scientific powers applicable to concretes, whereas a fair intellect, associated with a preponderating development of the coronal region, indicate *analogical* powers, *i. e.*, faculties adapted to similitude, relation and the agreement of principles. The former classifies and arranges facts, the latter invests them with moral and spiritual import. The one treats of matter, its physical properties and chemical composition, the other, of thoughts and intentions which involve right and wrong, relating to spiritual accountability. The intellect is employed upon an observable order of things, while the emotive faculties arrange the general laws of being into abstract science.

223. Fig. 92, an illustration of Prof. Tholuck, is a remarkable example of an encephalic organization. Figs. 71 and

Fig. 92.



78 fairly indicate the effects of undue mental activity, the intellect causing vital expenditure, and the emotions resulting in the devitalization of the blood, by exhausting its animus. While the intellect displays keen penetration, subtle discrimination and profound discernment, the emotions exhibit intense sensitiveness, acute susceptibility and inspirational impressibility. Evidently, such transforming powers, which change the equivalents of vitality into ideas and spiritual impressions, execute their functions by means of nerve cells, each one a

parasite, to suck up the life of the blood. Each upward transformation is given back to Nature in its downward metamorphosis.

224. The encephalic temperament is characterized by mental activity, great delicacy of organization, high and broad forehead,

expressive eyes, fine but not very abundant hair, great sensitiveness, refined feelings, vividness of conception and intensity of emotion. If the brain be laterally developed, there is manifested Ideality, Modesty, Sublimity, Imagination and Spirituality. If the brain and forehead project, the Perceptive, Intuitive and Reasoning faculties will predominate. If it rises high, and nearly perpendicularly, Liberality, Sympathy, Truthfulness and Sociability are manifested. If the emotive faculties are large, Faith, Hope, Love, Philanthropy, Religion and Devotion will characterize the individual. It is an artistic, creative, and esthetic temperament, beautiful in conception and grand in expression, yet its sensitiveness is enfeebling, and its crowning excellence—Love—when betrayed by the propensities, trails in defilement. Its purity is God-like, its debauchment, Perdition! Fig. 93 represents Alexander Wilder, M. D., of New York City, not as

Fig. 93.



perfectly as we could wish, but it truthfully portrays his massive intellect, and the blending of the encephalic with moderate volitive faculties. He possesses an analytic mind, acute in his

observations, forcible in his expressions and vivid in his conceptions. Although very sensitive in his organization, yet he faithfully obeys the mandates of truth, cost what it may. He is tall and spare in his person, and his height, intellectually speaking, allows him a broader vision for scientific synthesis, and he might become distinguished as a moral philosopher.

Fig. 94.



Fig. 94 is the likeness of Prof. George Bush. His forehead is amply developed in the region of Foresight, Liberality, Sympathy, Truthfulness and Benevolence; his mouth expresses Amiability and Cheerfulness, and the whole face beams with Kindness and Generosity. This philanthropist, who is both a preacher and an author, has published several works upon theology, which distinguish him for great research and originality.

225. Fig. 95 represents the sanguine-encephalic temperament, the two elements being most happily blended. The portrait is that of Emanuel Swedenborg, the great scholar and spiritual divine. The reader will observe how high and symmetrical is the forehead, and how well balanced appears the entire organization of this great Seer. He is remarkable for vivid imagination, vast scientific and emotional resources, and all his writings characterize him as a subtle reasoner, profoundly versed in the sublime mysteries of spirituality.

226. Every bright thought, and every noble aspiration, born out of organic materials and conditions, are transformed by the functional processes of the brain. We are gradually learning that the scale of human life is evenly poised by equivalents. The rise of one arm of the balance, indicates the fall of the other,

and every thought or emotion disturbs the equilibrium, for its liberation sends an equivalent of brain and blood-substance back to decomposition. If the highest manifestation of organic force is Spirituality, the brightest sparkle of truth or the most refulgent

Fig. 95.



glow of emotion, leaves an equation of disrupted elements—the ashes of its mortality. Critical analysis, summoning the faculties of the intellect, makes fearful raids upon the blood, plundering its nourishment, expending its vital energies, and stealing its richest qualities to form the texture of thought. Slowly, day by day and hour by hour, study impoverishes it by taking its glow, appropriating its richness and leaving it pale, cold and languid. The unsteady nerves tremble with St. Vitus's dance, the skin is blotched with scrofula, rickets distort the bones, and wan consumption displays a sickly whiteness, the sure foretoken of

approaching dissolution. Oft has paternal gratitude uttered: "We thank Thee, most merciful God, for the new-born blessings which Thou sendest into the arms of father and mother, to gladden not only them, but likewise relative and friend, and to people the earth with new generations of progressive men." The fond parent watches for the faintest glimmer of intelligence, reflected from this immortal gem, and straightway builds a paradise of hopes. These scions of love, however, are rendered too delicate for earth, for instead of cultivating and improving their bodies, we early consecrate them to wasting thought and emotion, until particle by particle, and by vital equivalents, mortality yields them a spiritual oblation. The stricken parents now pray: "O Thou Infinite Father, we thank Thee that for all sorrows there is a balm and relief, that the world which arches over our heads, invisible to mortal eye, is yet but a step from us, and our dear ones, looking their last on earth, are born anew into Thy kingdom above; in Thy mysterious and afflictive providences, increase our trust that we may be able to say, 'Thy will be done.'" Heaven comes near to earth and opens to the eye of faith celestial visions. But truth must enlighten the understanding in order that parents may know more concerning the rearing and culture of their children, and especially, how to strengthen their bodies for functional endurance, to the end, that they may attain both usefulness and length of days. The helplessness of the child suggests the nursery for its incipient care and prudent culture, which afterwards is supplemented by common schools and universities for intellectual, and by churches and theological seminaries for moral and spiritual development. Physical training, for healthful discipline, is the foundation on which to build, for there can be no durable, intellectual or moral superstructure without it. Let parents be diligent in laying carefully a solid foundation for the child in bones, muscles, rich blood and good health, by providing proper food, sufficient clothing, abundance of pure air, regular exercise and hygienic habits, and then good moral culture is all that will be required to complete a respectable, useful and magnificent man. He who would erect a great tower and hang a huge bell, upon an edifice which of itself is diminutive, without regard to either proportion or foundation, will find his impracticable calculations a laughing-stock, and his

architecture a failure. Unless the encephalic temperament is vigorously sustained by volitive energies and abundant sanguine offerings, it is, comparatively, useless architecture, attended by physiological misfortune and utter disaster.

227. When the encephalic preponderates and the sanguine is deficient in its elements, we find conditions favorable to *waste* and *expenditure*, and adverse to a generous *supply* and *reformation* of the tissues. A child, inheriting this cerebral development is already top-heavy and supports, at an immense disadvantage, this disproportionate organization, very much as a man carries a mortgage, the interest on which exceeds his income. The nutritive functions are overbalanced, consequently, there is an insolvent diathesis, a predisposition to scrofulous diseases, disorders of the blood, various degenerating changes taking place in its composition; loss of red globules signified by shortness of breath, morbid changes, manifested by cutaneous diseases and cancerous humors, exhaustion from lack of nourishment, etc., until finally, consumption winds up the affairs in complete bankruptcy.

228. Harmony is the support of all institutions and applies with special cogency to the maintenance of health. If the mind dwells on one subject to the exclusion of all others, we call it mono-mania. If we have an excessive development of mind, and deficient support of body, the result is corporeal derangement. It is unfortunate for any child to inherit unusual encephalic endowments, unless he is in possession of a vigorous, robust constitution. Such training must be directed to that body as will encourage it to grow strong, hearty and thrifty, and make it equal to the support of the cerebral functions. It is needful to check the mental proclivities, and cultivate the physical organization, to insure to such a child the harmony of health. Cut off all unnecessary brain-wastes, attend to muscular training and such invigorating plays and exercises as encourage the circulation of the blood, keeping the skin clean and its functions active, the body warm and well protected, the lungs supplied with pure air, the stomach furnished with wholesome food, plenty of sleep to invigorate the system, and thus, by regular habits, maintain that equilibrium which tends to wholesome efficiency and healthful endurance.

TRANSMISSION OF LIFE.

229. In our introduction to temperaments, we endeavored briefly to say, that healthful reproduction depends upon VITAL STIMULI and VITAL SUSCEPTIBILITIES. That these two conditions are *bisexual*, stimulus belonging to the male, and susceptibility to the female, organization. That unlikeness of derivation—essential difference of parental constitution—tends to fertility. Parallelism of organization—similarity of natures—tends to barrenness. Breeding in and in, *i. e.*, family intermarriages, diminish vigor and fertility. The temperaments indicate unlike conditions—contrasts of molecular constitution—needful for producing the fruitful germs of new individuals. Two persons, male and female, may possess a combination of organic elements so uniformly similar, that stimuli and susceptibility are lost. There is such uniformity of organization, similarity of parts, and sameness of elements, such a homogeneity of conditions and nature, that their state is one of entire agreement. And we call this perfect physical concordance, incompatibility! On no other hypothesis can we explain the sterility between parties, either of whom would have been fertile with different organizations. Both represent vital conditions, but they are not adapted to each other, and are thereby rendered infertile. Napoleon Bonaparte and his first wife, Gen. Washington and wife, Gen. Jackson and wife, are familiar illustrations of this truth. Either of these might have been life-generating with other parties. A critical analysis of their temperaments has resulted in the conclusion that their *constitutional similarity* was the occasion of their infertility.

230. Between certain combinations of temperaments, this sexual indifference is lost, and there is an irrepressible aptitude to fecundation, the result of functional attractions and antagonism of temperaments. Every year we witness such physical and mental attractions between the sexes, wholly unaccountable to ordinary philosophy. Out of these differences of organic disposition, which seem so contradictory and unpromising, is transmitted a vigorous and healthy progeny. The mystery is, how can individuals so dissimilarly tempered, blend in physical and spiritual coaptation, unless they are unconsciously moved by vital

attractions. The temperaments may be likened to a magnet, *the like poles of which repel, and the unlike, attract each other.* So similarity of temperament is infertility, while dissimilarity makes the vital magnetism all the more powerful. Marriageable parties, moved, they hardly knew how, or by what influence, have been drawn instinctively toward each other, have taken upon themselves the vows and obligations of wedlock, and have been fruitful and happy in this relation. Unholy alliances, founded upon position, money or purely arbitrary considerations — mere contracts of convenience — are very apt to prove joyless and unproductive.

231. Mankind may unconsciously obey strong temperamental attractions without even a suspicion of their existence, and in doing so, avoid those ills, which otherwise might destroy their connubial bliss. The *philosophy* of marriage receives no consideration, because the mind is pre-occupied with newly awakened thoughts and feelings. Lovers are charmed by inaudible harmonies, feel interior persuasions, respond to a new magnetic field, and are generally lost in an excess of rapture. Cupid is the divinity who excites the love that binds together human kind; and yet this fickle deity, with averted eyes, golden wings and quiver, is suffered to act like a mischievous, wanton boy, from whose tricks neither gods nor men are safe! He comes too often, only in the hours of darkness and flies before the dawn of morning, inspiring passion with his words of love! We propose that his habits shall be more regular and his visits made when suspicion need not attend the sportive youth! In works of art Psyche is represented as a maiden with the wings of a butterfly, the companion of Cupid, and Milton thus alludes to the twain

“Celestial Cupid, her famed son, advanced,
Holds his dear Psyche sweet entranced,
After her wandering labors long,
’Til free consent the gods among
Make her his eternal bride;
And from her fair unspotted side
Two blissful twins are to be born,
Youth and Joy; so Jove hath sworn.”

When Cupid learns temperamental adaptation with all his other arts, he will succeed physiologically in love conquests, and

have no need to journey through the aerial regions to supplicate the aid of Jupiter, nor will Psyche require the assistance of Mercury to make her happy in her nuptial relations.

232. Under the head of incompatible combinations through similarity of temperaments, we classify the *Sanguine Temperament* with another *Sanguine Temperament*, in which the organic elements seem to be held in equilibrium. If the constitution is characterized by Volitive elements, this should not unite with a temperament of the same diathesis.

PHYSIOLOGICAL MARRIAGE.

233. Physiological marriage results from the blending of the VITAL and NON-VITAL temperaments. The Sanguine constitution will blend in functional harmony with the Encephalic temperament, and with all of its minor and varying proportions of Volitive and Lymphatic elements. The Encephalic is naturally its opposite, and consequently, is magnetically and vitally attracted to it. The Volitive constitution will blend physiologically, with its opposite, the Lymphatic temperament, combining, in different proportions, Sanguine and Encephalic elements.

INCOMPATIBLE MARRIAGE.

234. If the parties to a marriage are both NON-VITAL, *i. e.*, if the organic elements preponderate so that both are encephalic or lymphatic, the offspring will be short-lived, and subject to wasting diseases. If both parties are excessively lymphatic, and there should be issue, there will result an indolent constitution with an inferior grade of vitality; the structures will be soft and yielding, easily influenced by morbid agencies.

235. Similarity of person and sameness of temperament are conditions incompatible to healthful and vigorous offspring. If the parties to a marriage are evenly balanced in organic elements, although both of them are vigorous, yet it is physiologically more suitable for them to form a nuptial alliance with an unlike combination. If the marriage has in view healthful propagation, as well as mutual enjoyment of mental and physical attractions, a vital temperament should be united to one that possesses either encephalic or lymphatic characteristics. We have seen mothers who acted quite indifferent towards a daughter,

their perfect counterpart in body and disposition, and fathers take a seemingly secondary interest in the son who greatly resembled them. The child who is most unlike the parent, no matter how wayward and troublesome, will generally enlist the largest share of parental sympathy.

236. The cause of the wretchedness attending many marriages, may be traced to a too great similarity of organization, ideas, taste, education, pursuits and association, which similitude almost invariably terminates in insipidity, and domestic unhappiness. No wonder that the offspring are tame, docile, languid, prosaic, and weak in mind and body. Husband and wife need to be as different as the positive and negative poles of a magnet, representing vital and non-vital temperaments, the ordinary status of each being totally unlike the other in vital tension; when life is begotten under these circumstances, we may expect a development bright with intelligence, whose flashing thoughts and reverberating forces will create a disturbance in the elements, for vital electricity means action and reaction, equal and opposite, just as the pendulum of a clock oscillates to and fro by the alternate influences of gravity and momentum. Every thought and act is only an equivalent given back, a shock from the battery of life and a release of power.

In sameness of organisms there is but little stimulus, and hence there results a satiety which is not only unsatisfactory, but utterly devoid of pleasure. Unsuitable marriages always result unhappily, render the parties more liable to temptation and cause them to forget their solemn vows of conjugal fidelity. What a war follows between the absolute assertions of man's higher and lower nature. No wonder that unhappiness with its nameless and numberless accompaniments, is the bitter experience of incompatible marriages. The union of parties who are closely allied in blood, if they are very dissimilarly tempered, does not necessarily entail degeneracy on their offspring. They are liable, however, to have the same predisposition, and hence are very likely to deteriorate.

CONJUGAL UNITY.

237. Real conjugal unity does not consist in rest, but in action, not in stagnation but agitation, not in insipidity, but in

oppositeness. The parties to a marriage contract should represent opposite conditions of temperament. Variations in functions and structure (not race contradictions) promote fertility. The husbandman understands that mixing soils renders them more productive. The elements lacking in one constitution are supplied by the other. Who has not observed poor specimens of a splendid stock, issuing from healthy parents incompatibly united in marriage? And likewise, who has not witnessed grandchildren redeeming the original promise and character of a family, and restoring its abated forces, by a fortunate physiological alliance? Behind these outward relations there must exist different vital potencies adapted to temperamental variations. The strongest sexual attractions arise out of these variations and spiritual antagonisms. How intense, how all absorbing and vitalizing, is love, which hallows the springs of life! How single, pure, and undivided, and how loyal it is to monogamous relations, will be discussed in the following chapter. When this Divine institution is rightly understood and appreciated, then may we better comprehend these words of Jesus: "What therefore God hath joined together, let not man put asunder."

THE APPLICATION OF CEREBRAL PHYSIOLOGY AND TEMPERAMENTS TO THE SUCCESSFUL PRACTICE OF MEDICINE.

238. The dew-drop on a blade of grass owes its rotundity and persistence to the action of a variety of forces. These are exerted in different ways, as the adhesion of the water to the leaf, the cohesion of the fluid particles among themselves, the attraction of gravitation, the presence of a certain amount of moisture in the atmosphere, the prevalence of a given temperature, as well as many other conditions and incidental circumstances not enumerated. The dew-drop may evaporate under sunshine, the wind may blow upon, and dislodge it, thirsty vegetable absorbants may drink it up, and in the laboratory of organization it may enter into the chemistry of life, ascend as incense, disappear as aqueous vapor, come again with the thunders of the tempest, and finally reappear, transfigured in the colors of a flower. Change of condition is the order of nature.

239. So it is with man. Mysteriously generated, developing

according to conditions, subject to the laws of life, perpetually undergoing change by physical, chemical and vital forces, he is likewise subjected to agencies which derange his functions, weaken his constitution, and finally overwhelm him with disease. It is the physician's duty to rectify these deviations from health by making favorable terms for functional duties, and endeavoring to restore each organ to its normal physiological relation.

240. **The analysis of physiological functions, and of the temperaments, is also an analysis of diseased actions.** In cerebral physiology, we indicated the mutual relations sustained by the nervous system, between the brain-functions and corporeal-functions. Unless we critically discern these reciprocal influences, how shall we know when they are disturbed, comprehend the dependence of one disordered action upon another and be prepared to regulate or remedially influence them. How are we to understand the connection of all the wheels of the machinery of life, or correct their movements, if their functions, relationship and dependence are a mystery! *All analysis of disease must be based on physiological knowledge.*

241. We refer the reader to the analysis of the cerebral functions and the human temperaments, which we have merely outlined, to indicate the advantages of those methods for understanding the constitution. The physician must be familiar with the phenomena of health which include all the vital processes, become a close student of the manifold phases of human nature, discern natural tendencies as well as morbid proclivities, be conversant with temperaments, constitutions and their peculiarities, be able to judge reasonably of the vital stamina, the activity of the recuperative powers, the individual ability to resist disease, and then weigh the probable consequences of functional departures, and estimate the strength of the reacting energies which may be aroused by medicines. If he understands all these conditions, he may better decipher pathology, or diseased processes, and interpret and select remedies with a skillful discrimination, leading to success.

242. No wonder that patients hesitate to employ a physician who is unacquainted with their temperament, aptitudes and peculiarities of constitution. We do not marvel at their dread of a

strange doctor, who gropes in the dark, seeking for light by a series of medical experiments! We are not at all amazed at receiving letters which disclose this anxiety, when the life is sometimes jeopardized, and the health staked on the judgment of those, who, in the absence of scientific considerations, begin a series of empirical tests and medicinal prescriptions, to end doubtfully, when they ought to be able to tell in advance, with surprising accuracy, precisely what that constitution will, and what it will not bear; to know what is essential to its recovery, and be able to prescribe the course of medicine which will prove successful. We say candidly and confidently, if physicians devoted themselves as they ought, to the mastery of cerebral physiology, and to a more definite knowledge of the human temperaments, not only theoretically but practically, they could at a glance read the constitution, foretell to patients their peculiar liabilities and dangers, and thus give convincing evidence, that they are masters of their profession.

243. We fully endorse Sir W. Hamilton, who writes: "Analysis and synthesis, though commonly treated as two different methods, are, if properly understood, only the necessary parts of the same method. Each is the relative and correlative of the other." We should thoroughly analyze the temperament, the cerebral powers and bodily functions, and then gather in one synthetical bundle, the symptoms which indicate aberration of functions, and all the signs of disease, to complete our knowledge of any given case. The vital and non-vital temperaments, each require a different plan of remedial operations in the same disease, because it will assume different phases in consequence of the variation in the arrangement of the organic elements. Hence, the great advantage possessed by the author of seeing a portrait of the patient, accompanying a full account of the symptoms. Although when they are correctly detailed, they may be a reliable guide, yet where there is doubt or obscurity, the portrait will indicate the temperament, the strength of the recuperative forces, the enfeebling tendencies, the vital powers, indeed, it shows us the organic history and constitutional condition of the patient, whose symptoms are described. Both indicate the extent of functional disorder or structural change. Thus we may scientifically combine *analysis* and *synthesis* to

obtain a more perfect knowledge of a patient's constitution, as well as diseased condition, and hence know better the appropriate remedies for his case, than we could otherwise learn by years of personal and experimental acquaintance. Individuals of the same temperament require dissimilar medicinal treatment. Suppose that the versatile actress, talented authoress, and accomplished lady, Mrs. Anna Cora Mowatt Ritchie, had forwarded to us her portrait, represented by Fig. 96, and had accompanied the same with a delineation of symptoms which indicated nervous

Fig. 96.



exhaustion, in consequence of unusually protracted mental effort; who does not instantly perceive that her treatment must be altogether different from that of an individual represented by Fig. 86. (We are not certain but that the latter may prosecute us for the benefits realized to mankind, by our references to his organization—while we almost fear innumerable libel-suits arising on account of such unavoidably flattering comparisons)! The causes which produce debility in the former, cannot exist with the latter, even if we assume

that it be an extreme representation of the sanguine temperament. Contrast Mrs. Ritchie's excellent nutritive system and her fair balance of elements with the encephalic endowments of Prof. Tholuck, Fig. 92. We at once infer that the latter would be more easily prostrated with depleting remedies, and that due caution should be exercised in administering cathartic medicine, even when such an evacuant is indicated. Great care should be employed when subjecting those organs to energetic treatment whose functions are enfeebling, when the sanguine elements are overbalanced by encephalic tendencies. Who does not recognize a full and harmonious development in the organization of Herbert Spencer, as represented by Fig. 97. His is a remarkably

active organization, indicating large mental and decided volitive

Fig. 97.



characteristics, so blended with sanguine elements, that it is difficult to decide now, which are strictly natural and which are acquired. His exhaustive mental labors have measurably expended his sanguine forces, so that prudence admonishes him to be a frugal economist, if he would enjoy the length of days that were originally his by reason of vigor of constitution. The susceptibilities of his mind indicate the sensitiveness of every

bodily organ, for nervous impressibility denotes functional susceptibility of all the structures. In administering medicine, this important consideration needs to be constantly borne in mind. Contrast, if you will, Fig. 98—a representation of the Hon. Daniel Webster, with that other gentleman, Fig. 99. True

Fig. 98.



Fig. 99.



the former possesses far more vitality and physical power, yet it is counter-balanced by remarkable intellectual and reasoning powers, calculated to expend and exhaust enormous vital supplies,

whereas, to say the least, the "other gentleman" represented is constitutionally more prudent. His intellectual expenditure will be, necessarily, very limited, and a sanguine development will make him sensual, if not almost bestial in his appetites. All these constitutional differences are reflected by diseases, and these elemental variations require corresponding remedial qualifications. Contrast Fig. 80 with Fig. 89; their portraits and temperaments indicate that they are not naturally subject to the same class of diseases, and if both were infected with the same contagion, they would require treatment which must accord with their *constitutional* characteristics, which in importance equals that indicated by the abstract knowledge of the nature of the disease itself.

244. A knowledge of cerebral physiology, of the vital and non-vital elements, and of all the powers of the constitution, is essential to successful practice, in these days of indulgence and physical effeminacy. Since there are so many that avail themselves of our skill, and send us their photographs, we would suggest that they obtain a quarter profile view, in a style as plain and natural as possible, and we would request the ladies not to encumber the hair with wads, or distort the shape of the head with braids. Our purpose is simply to analyze the temperament and constitution, and ascertain those tendencies which may assist us in adapting our remedies to the condition and various requirements of our patients. Our readers can contrast the representations which we have given to illustrate the different temperaments, and then ask themselves, is it possible that these differences in elements and structures involve no special consideration in the treatment of disease? Because these branches of science have been hitherto considered as unimportant, is not that the reason why many carefully and critically educated physicians have met with frequent reverses in practice, while others, with inferior attainments, have achieved both fame and success? Let us endeavor to get at the truths indicated by nature, approach her reverently as earnest seekers and diligent students, ready to accept her facts, interpret aright her realities, and then apply her principles for the universal good.

245. Having considered the question of marriage, physiologically, and indicated its temperamental advantages and

incompatibilities, we cannot refrain from a further expression of our views upon certain other features which relate to health and human happiness; and while giving to our convictions a free and candid statement, our dissent with the views expressed by highly esteemed cotemporaries, is unavoidable. We cordially concede to them the purity of their motives, but think that upon this vital subject they are in error.

CHAPTER XVI.

MARRIAGE.

LOVE.

“ Love is the root of creation; God’s essence;
worlds without number
Lie in his bosom like children; he made them
for this purpose only.
Only to love and to be loved again, he breathed
forth his spirit
Into the slumbering dust, and upright standing, it
laid its
Hand on its heart, and felt it was warm with a
flame out of heaven.”

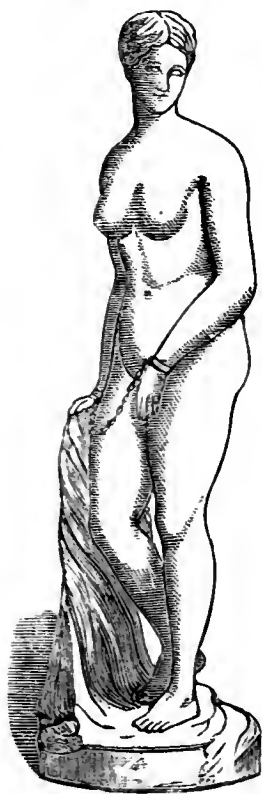
LONGFELLOW.

246. Love is the rudimental element of the human soul,—that delicate, inexplicable element which is the germinal essence of the human spirit. It is, therefore, a Divine gift—a blessing which the Creator did not withdraw from his erring children, when they were driven from a paradise of innocence and loveliness into a world of desolation and strife. He left it as an invisible cord by which to draw the human heart ever upward, to a brighter home—the heavenly Eden. Love is the very essence of Divine law, the source of inspiration, even the fountain of life itself. It is spontaneous, outflowing, infinite. To its presence we are indebted for all that is good, true and beautiful in Art and Nature. It endows humanity with countless virtues, and throws a mystic veil over our many faults. It is this love element—this immutable law, which controls the destiny of the race. Under its influence empires have fallen—sceptres have

been lost. Literature owes to Love its choicest gems. The poet's lay is sweeter when Cupid tunes the lyre. The artist's brush is truer if guided by Love. Greece was the cradle of letters and art. Her daughters were queens of beauty—fitted to inspire the Love of her noblest sons.

247. The sensualism of the nineteenth century has sought to

Fig. 100.



degrade Love,—to define it as purely physical. The result has been a corresponding degradation of art and even literature has lost much of its lofty idealism. Nudity has become a synonym of vulgarity, Love, of lust. "Evil to him who evil thinks." True Love never seeks to degrade its object; on the contrary, it magnifies every virtue, endows it with divinest attributes and guards its chastity, or honor at the sacrifice of its own life. It increases benevolence by opening the lover's heart to the wants of suffering humanity. Ideality is the canvas and imagination the brush with which Love delineates the beauties of the adored. Love heightens spirituality, awakens hope, strengthens faith and enhances devotion. It quickens the perceptions, intensifies the sensibilities and redoubles the memory. It augments muscular activity and imparts grace to every movement. The desire to love and be loved is innate and forms as much a

part of our being as bone or reason. In fact Love may be considered as the very foundation of our spiritual existence, as bone and reason are the essential bases of our physical and intellectual being. Every man or woman, feels the influence of this love-element, sooner or later. It is the Kadesh-barnea of human existence; obedience to its intuitions insures the richest blessings of life, while neglect or perversion enkindles His wrath, even as did the disobedience of the wandering Israelites.

248. The one great fact which pervades the universe is ACTION. The very existence of Love demands its activity, and hence the highest happiness is attained by a normal and legitimate development of this element of our being. The heart

demands an object upon which to lavish the largess of its affection. In the absence of all others, a star, a flower, or even a bird will receive this homage. The bird warbles a gay answer to the well-known voice, the flower repays the careful cultivator by displaying its richest tints, the star twinkles a bright "good evening" to the lonely watcher and yet withal there is an unsatisfied longing in the lover's heart, to which neither can respond—the desire to be loved! Hence the perfect peace of reciprocated love. If its laws are violated, nature seeks revenge in the utter depression or prostration of the vital energies. Thus has the Divine Law-giver engraven His command on our very being. To love is therefore a duty, the fulfillment of which should engage our noblest powers.

249. This emotion manifests itself in several phases prominent among which is filial affection—the natural harmonizer of society. Paternal love includes a new element, viz: protection. Greater than either and second only in fortitude to maternal affection, is

CONJUGAL LOVE.

"He is blest in Love alone

Who loves for years and loves but one."—HUNT.

250. With Swedenborg we may assert, "*that there is given love truly conjugal, which at this day is so rare, that it is not known what it is, and scarce that it is.*" The same author has defined this relation to be a union of Love and Wisdom. The fundamental law of conjugal love is *fidelity to one love*. God created but one Eve, and the essential elements of paternal and maternal love pre-suppose and necessitate for their normal development—the Love of "*one*" only. Again, Love is the sun of woman's existence. Only under its influence does she unfold the noblest powers of her being. Woman's intuitions should therefore be taken as the true love-gauge. If she desire a plurality of loves, it must be a law of her nature; but is communism the desire of our wives and daughters? No! Every act which renders woman dear to us, denounces such an idea and reveals the exclusive sacredness of her Love. As condemning promiscuity in this relation, we may cite the lovers' pledges and oaths of fidelity, jealousy—the offspring of infidelity, the self-perpetuity of Love itself, the common sense instincts of mankind, as

embodied in public sentiment, and the inherent consciousness that first love should be kept inviolable forever. Again, Love is conservative. It clings tenaciously to all the memories connected with its first object. The scenes consecrated to "Love's young dream" are sacred to every heart. The woodland with its winding paths and arbors, the streamlet bordered with bending violets and dreamy pimpernel, the clouds, and even "the very tones in which we spoke" are indelibly imprinted on the memory. There is also the "mine and thine" intuition of love. This sentiment is displayed in each thought and act of the lover: Every pleasure is insipid unless shared by the beloved; selfish and exacting to all others, yet always generous and forgiving to the adored. "Mine and thine, dearest," is the language of Conjugal Love.

251. The consummation desired by all who experience this affection, is the union of souls in a true marriage. Whatever of beauty or romance there may be in the lover's dream, is enhanced and spiritualized in the intimate communion of married life. The crown of wifhood and maternity is purer, more divine than that of the maiden. Passion is lost—the emotions predominate.

252. The connubial relation is not an institution, it was born of the necessities and desires of our nature. "It is not good for man to be alone," was the Divine judgment, and so God created for him "an helpmeet." Again, "male and female created He them," therefore, sex is as divine as the soul. It is often perverted, but so is reason, aye, so is devotion.

253. The consummation of marriage involves the mightiest issues of life. It may be the source of infinite happiness or the seal of a living death. "Love is blind" is an old saying, verified by thousands of ill-assorted unions. Unhappy marriages are traceable to one or more of three sources, viz: Incompatible temperaments, Physical inadaptation and Masquerading. The first has been alluded to in a former chapter (see temperaments, ¶ 234-5-6). Every mental state has its physical accompaniment. Sexual intercourse is the natural expression of love, by which alone it is raised above the plane of mere animal indulgence. The normal and legitimate exercise of this function leads to enjoyment and reproduction.

254. Physical inadaptation renders the latter and oftentimes both, impossible. It may be a malformation from birth, but oftener it is an unnatural position or size of the generative organs. The absurd burdens which fashion imposes upon her victims, and the hidden vices which stain the private records of many, are fruitful sources of the miseries which in many instances are the dregs of the hymenial cup.

255. Masquerading is a modern accomplishment. Girls wear tight shoes, burdensome skirts, corsets, etc., all of which prove so fatal to their health. At the age of seventeen or eighteen, our "young ladies" are sorry specimens of feminality; and palpitators, cosmetics and all the modern paraphernalia are required to make them appear fresh and blooming. Man is equally at fault. A devotee to all the absurd devices of fashion, he practically asserts that "dress makes the man." But physical deformities are of far less importance than moral imperfections. Frankness is indispensable in love. Each should know the other's faults and virtues. Marriage will certainly disclose them—the idol falls—and the deceived lover is transformed into a cold, unloving husband or wife. By far the greater portion of unhappy marriages are attributable to this cause. In love especially, honesty is policy and truth will triumph.

HISTORY OF MARRIAGE.

256. **Polygamy and Monogamy.** We propose to give only a brief dissertation on the principles and arguments of these systems, with special reference to their representatives of the nineteenth century. Polygamy has existed in all ages. It is and always has been the result of moral degradation or wantonness. The Garden of Eden was no harem. Primeval nature knew no community of love. There was only the union of two souls, "and the twain were made one flesh." Time passed, "the sons of God saw the daughters of men that they were fair and they took them wives of all which they chose." The propensities of men were in the ascendant, and "God repented Him that He had created man." He directed Noah to take into the ark, "two of each sort, male and female." But "the imagination of man's heart is evil from his youth" and tradition points to Polygamy as the generally recognized form of marriage among

the ancients. The father of the Hebrew nation was unquestionably a polygamist, and the general history of patriarchal life, shows that a plurality of wives and concubinage were national customs. In the earlier part of Egyptian history, Menes is said to have founded a system of marriage, ostensibly monogamous, but in reality it was polygamous, because it allowed concubinage. As civilization advanced, the latter became unpopular, and "although lawful, was uncommon," while polygamy was expressly forbidden. Solomon (according to polygamous principles) with his thousand women, should have enjoyed a most felicitous condition. Strange that he exclaimed "A woman among all these have I not found." According to the distinguished Rabbi, Maimonides, polygamy was a Jewish custom as late as the thirteenth century. When Cecrops, the Egyptian King, came to Athens (1550, B. C.) he introduced a new system which proved to be another step toward the recognition of Monogamy. Under this code a man was permitted to have but one wife and a concubine. Here dawned the era of Grecian civilization—an era, the glory of which was reflected in the social and political principles of Western Europe. During the fourth and fifth centuries, concubinage disappeared, but under the new regime the condition of the wife was degraded. She was regarded as simply an instrument of procreation and a mistress of the household, while a class of foreign women who devoted themselves to learning and the fine arts, were the admired, and oftentimes the beloved companions of the husbands. These were the courtesans who played the same role in Athenian history, as did the chaste matron, in the annals of Rome. When Greece became subject to Rome and the national characteristics of these nations were blended, marriage became a loose form of monogamy. In Persia, during the reign of Cyrus (560, B. C.), polygamy was sustained by custom, law and religion. The Chinese marriage system was, and is, practically polygamous, for, from their earliest traditions, we learn that although a man could have but one wife, he was permitted to have as many concubines as desired.

257. In the Christian era, the first religious system which incorporated polygamy as a principle was Mohammedism. This system which is so admirably adapted to the voluptuous character of the Orientals, has penetrated Western Europe, Asia and

Africa. Hayward estimated the number of its adherents to be one hundred and forty millions. The heaven of the Mohammedan is replete with all the luxuries which appeal to the animal propensities. Ravishing Houris attend the faithful who recline on downy couches in pavilions of pearl. On the Western Continent a system of promiscuity was practised by the Mexicans, Peruvians, Brazilians and the barbarous tribes of North America.

258. The Mormon Church was founded by Joseph Smith, and professes to be in harmony with the Bible and a special revelation to its leading Saint. According to the Mormonistic code, "Love is a yearning for a higher state of existence, and the passions, properly understood, are feeders of the spiritual life;" and again, "nature is dual; to complete his organization a man must marry." The leading error of Mormonism is that it mistakes a legal permission for a Divine command. The Mormon logic may be premised as follows: the Mosaic law allowed polygamy; the Bible records it; therefore, the Bible *teaches* polygamy. All will observe the fallacy at once.

A Saint (man) can have no less than three wives but as many more as he can conveniently or *inconveniently* support. The eight fundamental doctrines of the Mormon Church are stated as follows: 1. God is a person with the flesh and form of a man. 2. Man is a part of the substance of God and will himself become a god. 3. Man is not created by God but existed from all eternity. 4. Man is not born in sin, and is not accountable for offenses other than his own. 5. The earth is a colony of embodied spirits, one of many such settlements in space. 6. God is president of the immortals, having under Him four orders of beings: (1.) Gods—*i. e.*, immortal beings, possessed of a perfect organization of soul and body, being the final state of men who have lived on earth in perfect obedience to the law. (2.) Angels, immortal beings who have lived on earth in imperfect obedience to the law. (3.) Men, immortal beings in whom a living soul is united with a human body. (4.) Spirits, immortal beings, still waiting to receive their tabernacle of flesh. 7. Man, being one of the race of gods became eligible, by means of marriage for a celestial throne, and his household of wives and children are his kingdom, not only on earth but in heaven. 8. The kingdom of God has been again founded on earth, and the time has now

come for the saints to take possession of their own; but by virtue, not by violence; by industry, not by force. This sect has met with stern and bitter opposition. It has been successively located in New York, Ohio, Missouri and Illinois, from the last of which it was expelled, by force of arms, and in 1848 established in Utah. Its adherents number, at the present time, more than one hundred thousand.

259. Another organization, differing from the Mormons in many of its radical principles, are the "Communists," popularly termed "Free Lovers." It is located at Lennox, Madison Co., N. Y. Its members advocate a system of "complex marriage" (so called), which is claimed to be instituted with a conscientious regard for the welfare of posterity. They disclaim "promiscuity" and assert that the tie which binds them together is as permanent and sacred as that of Marriage! Community of property is commensurate with freedom of Love. They define love to be "social appreciation," and this element in their code of civilization (which they deem superior to all others) is secondary to "bodily support." The principles upon which their social status is founded may be briefly summarized as follows: "Man offers woman support and love (unconditional). Woman enjoying freedom, self-respect, health, personal and mental competency, gives herself to man in the boundless sincerity of an unselfish union. State—, Communism." In this as in all forms of complex or polygamous marriages, love is made synonymous with sexuality, and its purely spiritual element is lost. In every instance this spiritual element should constitute the basis of marriage, which without it is nothing more than legal prostitution. Without it, the selfish degrading, animal propensities run rampant, while the emotions with all their boundless sweetness are dormant. Woman is regarded as only a plaything to gratify the animal caprice, and nausea and disgust inevitably follow. Their offspring (if they are so unfortunate as to have any) inherit all the basilar faculties, with but little of the counteractives.

260. That Monogamy is a law of nature is evident from the fact, that it fulfils the three essential conditions which form the basis of true marriage, viz: (1.) The development of the individual. (2.) The welfare of society. (3.) Reproduction.

THE DEVELOPMENT OF THE INDIVIDUAL.

261. (a.) PHYSICALLY. Reciprocated love produces a general exhilaration of the system. The elasticity of the muscles is increased, the circulation is quickened, and every bodily function is stimulated to renewed activity. The duties of life, are performed with a zest and alacrity never before experienced. "It is not possible for human beings to attain their full stature of humanity, except by loving long and perfectly. Behold that venerable man! he is mature in judgment, perfect in every action and expression, and saintly in goodness. You almost worship as you behold. What rendered him thus perfect? What rounded off his natural asperities, and moulded up his virtues? Love mainly. It permeated every pore, and seasoned every fibre of his being, as could nothing else. Mark that matronly woman. In the bosom of her family, she is more than a queen and goddess combined. All her looks and actions express the outflowing of some or all of the human virtues. To know her is to love her. She became thus perfect, not in a day or year, but by a long series of appropriate means. Then by what? Chiefly in and by love, which is specifically adapted thus to develop this maturity." But all this occurs only when there is a normal exercise of sexuality. Excessive indulgence in marital pleasures deadens all the higher faculties, love included, and results in an utter prostration of the bodily powers. The Creator has endowed man and woman with passions, the suppression of which leads to pain, their gratification to pleasure—their satiety to disgust. In accordance with the eternal fitness of His creations, if He had intended that polygamy should be the true system of marriage man would have been endowed with an excess of the passional element; but it is universally true that a perfectly healthy woman is fitted in every respect to gratify the natural desires and necessities of a man. Even excessive intercourse between a man and wife, produces abnormal conditions of the generative organs and not unfrequently leads to incurable disease. Polyandry is as justifiable as polygamy and neither is sustained by the laws of sexual physiology and hygiene.

(b.) MORALLY AND INTELLECTUALLY. In no nation where the polygamous system prevails do we find a code of political and

social ethics which recognizes the rights and claims of the individual. The condition of woman is that of the basest slave — a slave to the caprice and tyranny of her master. Communism raises her from the slough of slavery, but subjects her to the level of prostitution. An inevitable sequence of polygamy is a decline of literature and science. The people living in accordance with this or the communistic system, have never produced an intellectual genius. They have never added one original or fruitful idea to the general fund of learning. The natural tendency of each system is to *sensualism*. The blood is diverted from its normal channels and the result is, a condition which may be appropriately termed *mental starvation*. Sensualism is, in its very nature and sequences, directly opposed to literary attainments or advancement. Happily there is a "golden mean," an equalization of these elements which constitutes the acme of individual enjoyment.

THE WELFARE OF SOCIETY.

262. The general law of ethics, that "whatever is beneficial to the individual, contributes to the highest good of society and *vice versa*," applies with equal force to the hygienic conditions of marriage. Each family, like the Roman household, is the prototype of the natural government under which it lives. Wherever the marriage relation is regarded as sacred, there you will find men of pure hearts and noble lives, literally, soul-heroes. Of all foreign nations the Germans are celebrated for their sacred regard of woman, and the duties of marriage, and all scholars from the age of Tacitus to the present day, have concurred in attributing the elevation of woman to the pure-minded Teutons. In America law recognizes only Monogamy; but domestic unhappiness is a prominent feature of our national life; therefore, argues the would-be liberal and free-lover, monogamy does not accord with the best interests of mankind. The fallacy lies in the first premise. Legally, our marriage system is monogamous but *socially* and *practically* it is *not*! Prostitution is the source of this domestic infelicity. The "mistress" sips the sweet nectar that is denied to the deceived wife. Legislators have battled with intemperance, but have done comparatively little to banish from our midst this necessary (?) evil. Shudderingly they turn

from this abyss of iniquity and disease. Within it is coiled a hydra-headed monster, that invades our hearth-stones, contaminates our social atmosphere, and whose very breath is laden with poisonous vapors — the inexhaustible source of all evil.

263. The tendency of the age is toward a system of lax morality. The perverted appetites of mankind are mistaken for the natural desires and necessities of our being; and accordingly various arguments have been advanced to prove that monogamy is not salutary to social development. It is curious that no one of these arguments refers to the health and well-being of the *individual*, thus overlooking (perhaps willfully) the great law of social economy. Even a few medical writers (to whom the hygienic advantages of monogamy must be apparent) sometimes advocate the principles of this so-called liberalism. In a recently published work, there are enumerated only *two* demerits of polygamy and *six*, of monogamy. These six demerits which the author is pleased to term a "bombshell," he introduces on account of his moral convictions no less than humanitarian considerations. The same author terms monogamy a "worm-eaten and rotten-rooted tree." The worm that is devastating the fairest tree of Eden and draining its richest juices is what our cotemporary thinks, may be "*plausibly termed, a necessary evil.*" We may enumerate the arguments against monogamy as follows: (1.) Selfishness. It is claimed that monogamy begets narrow sympathies and leads to selfish idolatry. The fallacy of this argument is in the misapprehension of the term *selfishness*. Self-preservation is literally selfishness, yet who will deny that it is a paramount duty of man. If perverted it may be vicious, even criminal; but selfishness, in so far as it is generated by monogamy is one of the chief elements of social economy; furthermore it favors the observance of the laws of sexual hygiene. As we have said elsewhere, true love *increases benevolence* and correspondingly expands and develops the sympathies. Selfish idolatry is far preferable to social neglect. The sequences of this argument will not bear a critical examination; for it is asserted that in a happy union, "love is so exclusive that there is hardly a liking for good neighbors, and scarcely any love at all for God." If the "good neighbors" were equally blessed, they would not suffer from this exclusiveness, and it is practically true

that there is no higher incentive to love and obey our Maker than the blessing of a happy marriage. (2.) Violation of Nature's laws. It is asserted that "perfect physical and mental content and cheerfulness are not, nor can they be possessed by those who do not live naturally." Reading farther, we find that to "*live naturally*" means to indulge the sexual appetite. This statement is erroneous. On the contrary, it is proved by facts, and acknowledged by all physicians that perfect chastity, insures longevity and a happy life. (3.) Again we read, "Monogamy overlooks the daily demonstrated fact that a married couple may grow apart." The absurdity of this proposition is apparent. Admit it to be true and man is no higher than the brute, while on the other hand, it is a positive fact, that a living husband and wife are gradually assimilated and closely resemble each other in thoughts, feelings and actions. (4.) "Variation of stimulus is necessary to preserve the tone and health of every organ of sense, and prolonged application of the same stimulus exhausts it." In a monogamous marriage, where the parties are temperamentally adapted, there is always a *variation of stimulus*, and we readily admit the fact that a prolonged application of any one stimulus is exhaustive; hence the fundamental law of sexual physiology, that excess in marital pleasures is not only unhealthful, but will eventually engender disease, and result in death.

THE PERPETUATION OF THE SPECIES.

264. The third essential object of marriage is the perpetuation of the species. The desire for offspring is innate in the heart of every true man or woman. It is thus a law of our nature and as such must have its legitimate sphere. The essential features of reproduction proclaim monogamy to be the true method of procreation. Promiscuity would render the mother incapable of designating the father of her children. In the lower animals, "pairing" is an instinctive law wherever the female is incapable of protecting and nourishing her offspring. During at least fifteen years, the child is dependent for food and clothing upon its parents, to say nothing of the requisite moral training and loving sympathy, which, in a great measure, mould its character. Fidelity to one promotes multiplication, according to the well known physiological law that a repeated planting of the seeds of

life proves fatal. It has been argued by anti-monogamists that such a system interferes with woman's god-given right to maternity. Of the many marriages celebrated yearly, comparatively few are sterile. The statement that many single women are desirous of having children, would apply only to a very limited number, as it is seldom that they are able to support children without the aid and assistance of a father. Promiscuity, diminishes the number and *vitiates* the quality of the human products. "Women of pleasure" never give to the world sons of genius, or daughters of moral purity.

CHAPTER XVII.

REPRODUCTION.

265. Every individual derives existence from a PARENT, which word literally means "*to produce.*" *Father* signifies "*generator.*" We restrict the import of reproduction ordinarily, to that function by which living bodies produce other living bodies, similar to themselves. Production means, *prolongation, continuance.* Re-production, the producing again or renewing. To protract individual existence nutrition is necessary, because all vital changes are attended by *wear and waste.* Nutrition is always engaged in the work of reparation. Every organism that starts out upon its career of development, depends upon nourishing materials for growth, and upon this renewing process for mending and development. Having commenced, it must pass through regular succeeding stages of existence, until it reaches its conclusion. Nutrition is all the while necessary to prolong the life of the individual, but at length its vigor wanes, its functions languish, and finally the light of earthly life goes out in darkness. Although the single organization decays and passes away, nevertheless the species is uninterruptedly continued; the tidal wave of life surges higher on the shores of time, for reproduction is as constant and stable as the attractive forces of the planetary system.

266. It is a fact, that many varieties of the lower order of animals which once existed, are now extinct. It has been asserted and contradicted, that fossil remains of man have been found, indicating that the races which once existed, have disappeared from the face of the earth. The pyramids are unfolding a wonderful history, embracing a period of forty-five

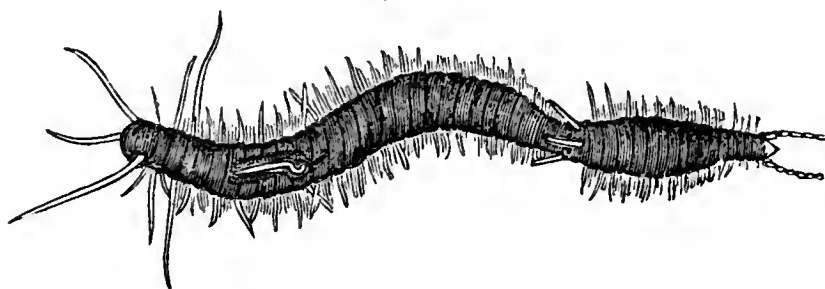
hundred years, which the world of science receives as literally authentic, and admits also, that fifty-four hundred years are *probably* as correctly accounted for. The extinction of races is not at all improbable. At the present time, the aboriginal inhabitants of this continent seem to be surely undergoing gradual extinguishment! It therefore seems to be a possible contingency for a weaker race to deteriorate, and continue to lapse, unless the causes of their decadence can be discovered and remedied. All people are admonished to look into and investigate the essential requirements of their continuance, for the rise and fall of nations is in obedience to natural principles and operations. Viewed from this stand-point, it is possible that a careful study of the human temperaments and their relations to reproduction, may be of greater moment than has hitherto been supposed, and their proper understanding may tend to avert that individual deterioration, which, if suffered to become general, would end in national disaster and race extinction.

267. *Observation.*—Until recently, naturalists even, believed that descendants were strictly like their parents, in form and structure. Now it is known that the progeny may differ in both form and structure from the parent, and that these may produce others, still more unlike their ancestry. But all of these peculiar and incidental deviations finally return to the original form, showing that these changes have definite limits, and that the alternations observe a specific variableness, which is finally completed by its assuming again the original form. (See ¶ 24, Figs. 2 and 3).

268. REPRODUCTION may be SEXUAL or NON-SEXUAL. In some plants and animals, it is non-sexual. The propagation of species is accomplished by buds. Thus the gardener engrafts a new variety of fruit upon an old stock. The florist understands how to produce new varieties of flowers, and make them radiantly beautiful in their bright and glowing colors. The bud personates the species, is a perfect individuality and produces after its kind. Some of the annelides, a division of articulate animals, characterized by an elongated body, formed of numerous rings or annular segments, multiply by spontaneous division. A new head is formed at intervals in certain segments of the body. (See Fig. 101).

Something similar to this process of budding, we find taking place in a low order of animal organization. Divide the Fresh-water Polyp into several pieces, and each one will grow into an entire animal. Each piece represents a polyp, and so each parent polyp is really a compound animal, an organized community of beings. Just as the buds of a tree are separated and grow again when engrafted upon another tree, each preserving its original identity, so do these animals, when divided, each separated part becoming an individual polyp, capable of similar reproduction.

Fig. 101.



An annelid dividing spontaneously, a new head having been formed toward the hinder part of the body of the parent.

269. The *Revolving Volvox* likewise increases by growth until it becomes a society of animals, *i. e.*, a multiple system of individuals. There are apertures from the parent, by which water gains a free access to the interior of the whole miniature series. This monad was once supposed to be a single animal, but the microscope shows it to be a group of animals in organic connexion by means of six processes, and each little growing *Volvox* exhibits his red-eye spec and two long spines, or horns. These animals also multiply by dividing, and thus liberate a smaller series, which, in their turn, spontaneously reproduce other groups.

270. Generation requires the concurrence of *Stimuli* and *Susceptibility*, and to perfect the process, two conditions are also necessary. The first is the *Sperm*, which communicates the principle of action, the latter is the *Germ* which receives the latent life and provides the arrangements adapted to organic evolution. The vivifying function belongs to the male, the nourishing and cherishing is possessed by the female, and these

conditions are sexual distinctions. The former represents *Will* and *Understanding*, the latter, *Vitality* and *Emotion*. The father directs and controls, the mother fosters and encourages; the former counsels and admonishes, the latter persuades and caresses; and their union in holy matrimony represents *one*, that is, the blending of vitality and energy, of love and wisdom, the elements indispensable to the initiation of life under the dual conditions of male and female, *one in the functions of reproduction*.

271. Let us consider the Plans of Sexual Reproduction, which are either

HERMAPHRODITIC OR DICECIOUS.

We have said that two set of cells represent reproduction, viz: Sperm and Germ-cells. These may be furnished by different individuals, or the two set may be found in one. When found in the same individual, the parent is said to be a *NATURAL hermaphrodite*, that is, a perfect hermaphrodite possesses the attributes of both male and female—unites both sexes in one individual. Natural hermaphroditic reproduction occurs among inferior classes of animals, and naturalists inform us that there is a much greater number of these than of the more perfect varieties. True, these are found low in the scale of animal organization, and are able to propagate without the concurrence of the sexes. The Oyster, Lamp-cockle and Ascidia are examples of animals, in which no organs can be detected in the male, but in the female they are developed. Polyps, Sponges and Cystic Entozoa may also be included in these examples.

Observation.—It is only very low organisms indeed in which it is a matter of indifference whether the united sperm-cells and germ-cells are those of the same individual, or those of different individuals. In more elaborate structures and highly organized beings, the essential thing in fertilization, is, the union of these cells specially endowed by *different* bodies, the unlikeness of derivation in these united reproductive centres being the desideratum to life and power.

In other classes, as *Entozoa*, there appear to be special provisions whereby the sperm-cells and germ-cells may be united, *i. e.*, the male organs are developed, and so disposed as to fecundate the ova of the same individual. Sexual and non-sexual

modes of reproduction are illustrated by that well defined group of Marine Invertebrate Animals called CIRRIPIEDIA. (See Fig. 102, representing one of the genus).

Fig. 102.

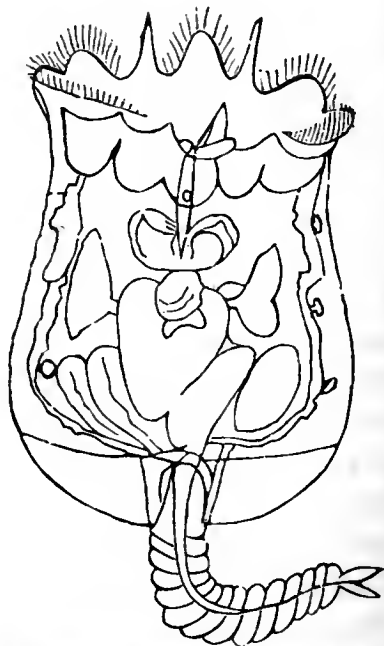


Pollicipes Mitella.

Some of these are not only capable of self-impregnation, but likewise have what are called, *complemental males* attached to some of the hermaphrodites. In the whole animal kingdom, it may be doubted if there exists another so rudimentary a creature as these parasitic males, who possess neither mouth, stomach, thorax nor abdomen, and after exerting a peculiar sexual influence, soon die and drop off; so that in this class of animals may be found the sexual distinctions of male, female and perfect hermaphrodites.

272. There is a class of Wheel-Animalcules under the name of *Rotatoria* (of which the Revolving Volvox is one example). They have acquired this name probably on account of the apparent rotation of the disc-like organs which surround their mouths and which are covered with "cilia" (little hairs). They are minute creatures, and can best be viewed with a microscope, although larger forms may be seen without such assistance. They are widely diffused on the surface of the earth, inhabit lakes as well as the ocean and are found in cold, temperate and tropical climates. The Rotifera were once supposed to be hermaphrodites, but the existence of sexes in one species has been clearly established. The male, however, is much smaller and far less developed than the female. In some of these species, germ-cells or eggs are found, which do not require fecundation for reproduction or development, so that they belong to the non-sexual class of reproducers.

Fig. 103.



Rotifera; Brachionus Urceolaris; largely magnified.

The third variety of hermaphrodites embraces those animals in which the male organs are so disposed as not to fecundate the ova of the same body, but require the concurrence of two individuals, notwithstanding the co-existence in each of the organs of both sexes. Each in turn, impregnates the other. The common leech, earth-worm and snail propagate in this manner.

273. *Unnatural* hermaphroditism is characteristic of insects and crustaceans, where the whole body indicates a neutral character, tending to exhibit the peculiarities of male or female, in proportion as the kind of sexual organs predominate. Half of the body may be occupied by male, the other half by female organs, and each half reflects its sexual characteristics. Some of the *Papilio* (and the genus includes that beautiful class of insects known as butterflies,) may be dimidiate hermaphrodites, *i. e.*, present on one side the form and color of the male, on the other, that of the female. The wings show by their color and appearance these sexual distinctions. The stag-beetle also is an example. We have accounts of dimidiate hermaphrodite lobsters, male in one half and female in the other half of the body.

Observation.—Among the numerous classes of higher animals, which circulate red blood, we have heard of no well authenticated instance of hermaphroditism, or the complete union of *all* the reproductive organs in one individual. True the term *hermaphrodite* is often applied to certain persons in whom there is some imperfection, deficiency or excess of the genital organs. The very fact that such are thereby incapacitated for generation shows that it is a malformation, whereas, *true* hermaphroditism is a mode of reproduction. Hence these congenital deformities, consisting in combined increase or deficiency, supernumerary organs or transposition of them, which render generation physically impossible, have been called *bisexual* hermaphroditism, and classed as monstrosities. We have many published accounts of them. In Paris, France, there was a widower, who had, in addition to male organs, a uterus and ovaries, but the external female “genitalia” were wanting. Samuel Torrey, M. D., U. S. A., records an instance of a colored man, who, in addition to male organs, had a short vaginal passage, from which exuded the “menstrua,” regularly every month. The causes which tend to produce in

the same individual, organs which represent in part both sexes, are rather obscure.

274. Certain theories have been advanced concerning conditions that may influence the sex of the offspring. One is that the right ovary furnishes the germs for males, the left for females; that the right testicle furnishes sperm capable of fructifying the germs for males, and the left testicle, the germs of the left ovary, for females. That fecundation sometimes takes place from right to left and thus produces these abnormal variations. We merely state the hypothesis, but do not regard it as accounting for the distinctions of sex or of the cause of monstrosity, though it is somewhat plausible as a theory, and is not easily disproved. In the lower order of animals, as sheep and swine, one of the testicles has been removed, and there resulted afterward both male and female progeny, so that the theory seems to lack facts for foundation.

We sometimes witness in the child, excessive development, as five fingers, or too large cranium followed by dropsical effusion, or deficient brain, as in idiots; sometimes a hand or arm is lacking, or possibly there is a dual connection, as in the case of the Siamese twins; or two heads united to one body. It will be difficult to give any satisfactory explanation of these abnormal developments. The marvel is that they occur so seldom. From age to age the genetic force is *constant*, indivisible and preserves a race-unity. The crossings of the races are only transient deviations, not capable of perpetuation, and quickly return again to the original stock. This force is loyal, for inasmuch as the individual represents the race, so does his offspring represent the parental characteristics, in tastes, proclivities and morals, as well as in organic resemblances. This constancy is unaccountable, more mysterious than occasional arrest, excess, malformation or improper development of germs, in the early period of foetal life. If to every deviation from that original form and structure, which gives character to the productions of nature we apply the term *monster*, we shall find but very few, and from this whole class, there will be a very small number indeed, of *sexual* malformations. If either sex are deprived of the generative organs, they approach each other in disposition and appearance. All those who are partly male and partly female in their

organization, unite, to a certain extent, the characteristics of both sexes. When the female loses her prolific powers, many of her sexual peculiarities and attractions wane also.

DICECIOUS REPRODUCTION.

275. Dicecious is a word derived from the Greek, and signifies "*two households*," i. e., *dicecious reproduction* is sexual generation by male and female individuals. Each is distinguished by sexual characteristics. The male sexual organs are complete in one individual, and all the female organs belong to a separate feminine organization. With some of the vertebrates, impregnation does not require sexual congress; in other words, fecundation may take place *externally*. The female fish of some species, first deposits her ova, and afterwards, the male swims to that locality and fertilizes them with sperm.

276. In higher orders of animals, fecundation occurs *internally*, the conjunction of the sperm and germ-cells requiring the conjugation of the male and female sexual organs. The sperm-cells of the male furnish the quickening principle, which sets in play all the formative energies, while the germ-cell, susceptible to its vivifying presence, responds with all the conditions necessary to evolution. The special laboratory which furnishes spermatie material is the *testes*, while the stroma of the *ovaries*, contributes the germ-cell. Several different modes of reproducing are observed when fecundation occurs within the body, which vary according to the peculiarities and organization of the female.

277. **Modes of Dicecious Reproduction.** A very familiar illustration of one mode, is found in the common domestic fowl, whose egg, vivified within the ovarium, is afterward expelled and hatched by the simple agency of warmth. The "tread" of the male is necessary but once during a season, to quicken the entire series of eggs in process of development. This mode of reproduction is called **Oviparous** generation.

Observation.—The ovaries as well as all their latent germs are *remarkably* influenced by the first fecundation. It seems to indicate monogamy as the rule of higher sexual reproduction. The farmer understands that if he wishes to materially improve his kine, the first offspring must be begotten by a better, purer

breed, and all that follow will be essentially benefitted, even if not as well sired. Neither will the best blood exhibit its most desirable qualities, in the calves whose mothers have previously carried inferior stock. So that there are sexual ante-natal influences, which may deteriorate the quality of the progeny. The Jews understood this principle, in the raising up of sons and daughters unto a deceased brother. The fact that the sexual influence of a previous conception is not lost, is illustrated when in a second marriage, the wife bears a son or daughter resembling bodily or mentally, or in both of these respects, the former husband. This indicates union for life by natural influences which never die out.

278. With some species of fish and reptiles, the egg is impregnated internally, and the process of *laying* commences immediately, but it proceeds so slowly through the excretory passages, that it is hatched, and born alive. This is called **Ovi-viviparous** generation.

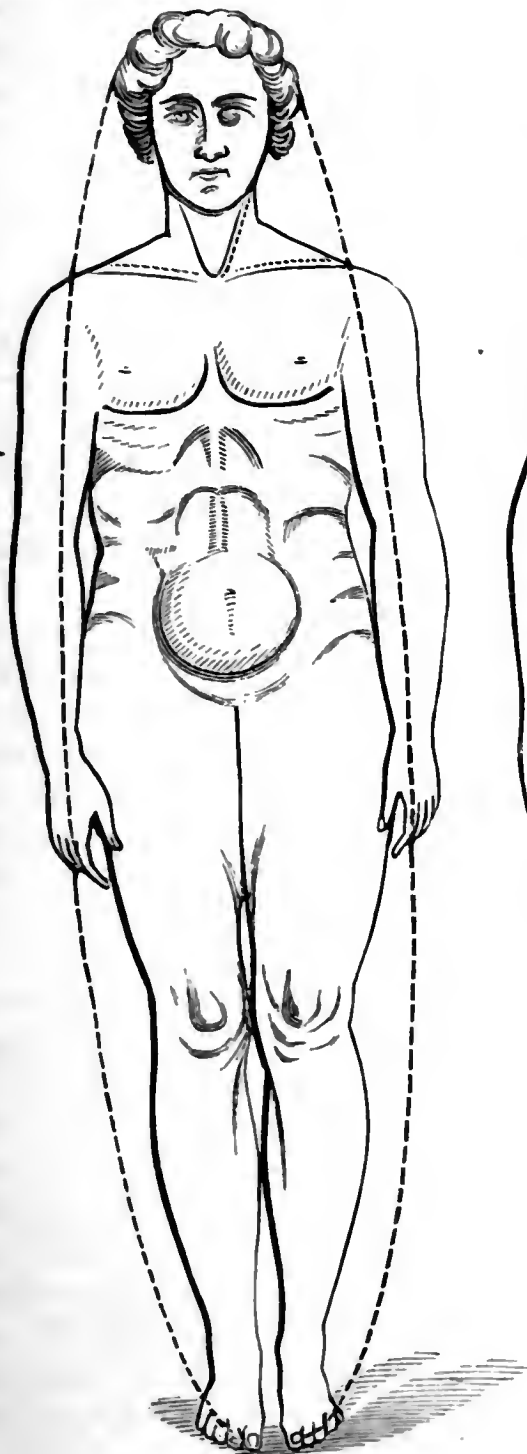
279. As we rise in the scale of organization, animals are more completely developed, and greater economy is displayed in their preservation. The germ passes from the ovarium into an organ prepared for its reception and growth, to which, after fecundation, it becomes attached, and where it remains until sufficiently developed to maintain respiratory life. This organ is called "*the Womb*," or *Uterus*, and is peculiar to most mammalia. This mode of reproduction is termed **Viviparous** generation.

280. The Kangaroo and Opossum are provided with a pouch on the abdomen which receives the young, born at an early stage of development. They remain in contact with the mammæ, from which they obtain their nourishment until their growth is sufficiently completed to maintain independent existence. This is called **Marsupial** generation. The variety of reproduction which is most interesting, is that which concerns the human species, and is called *viviparous* generation. It includes the functions of *Copulation*, *Fecundation*, *Gestation*, *Parturition* and *Lactation*.

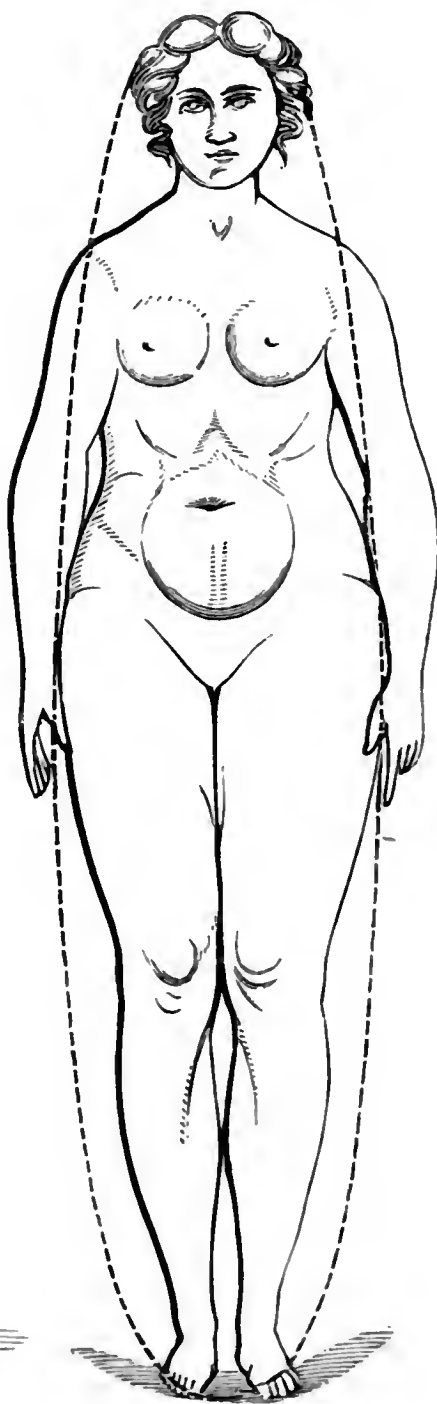
281. For the full and perfect development of mankind, both mental and physical *chastity* is necessary. The health demands abstinence from unlawful intercourse. Therefore children should be instructed to avoid all impure works of fiction, which tend to

Fig. 104.

Fig. 105.



Male.



Female.

inflame the mind and excite the passions. Only in total abstinence from illicit pleasures is there safety, morals and health, while integrity, peace and happiness are the conscious rewards of virtue. Impurity travels downward with intemperance, obscenity and corrupting diseases, to degradation and death. A dissolute, licentious, free-and-easy life is filled with the dregs of human suffering, iniquity and despair. The penalties which follow a violation of the law of chastity, are found to be severe and swiftly retributive.

282. The union of the sexes in Holy Matrimony is a law of nature, finding sanction in both morals and legislation. Even some of the lower animals unite in this union for life and instinctively observe the law of conjugal fidelity with a consistency which might put to blush other animals, more highly endowed. It seems important to discuss this subject and understand our social evils, as well as the intense passionnal desires of the sexes, which must be controlled, or lead to ruin.

283. Sexual propensities are possessed by all, and these must be held in abeyance, until they are needed for legitimate purposes. Hence parents ought to understand the value to their children, of mental and physical labor to elevate and strengthen the intellectual and moral faculties, to develop the muscular system and direct the energies of the blood into healthful channels. Vigorous employment of mind and body engrosses the vital energies and diverts them from undue excitement of the sexual desires.

284. Sexual generation by pairing individuals, is the most economical mode of propagating the species. The lower orders of animals possess wonderful multiplicative powers, and their faculty for reproduction is offset by various destructive forces. The increased ability for self-maintenance implies diminished reproductive energy, hence the necessity for greater economy and safety in rearing the young. As certain larvæ and insects increase, the birds that feed upon them become more numerous. These same birds again disappear, accordingly as their food becomes scarce. Many have remarked, that very prolific seasons are followed by unusual mortality, just as periods of uncommon prosperity precede those of singular disaster.

285. The increased mental and moral cultivation of mankind

imposes upon them the necessity for greater physical culture. "Wiser and weaker," is a trite saying, and means, that the exercise of the higher nature discloses the equivalent necessity of culturing the body, in order to support the increasing expenditures of the former. Mental and moral discipline are essential to a proper understanding of how to provide for the body, for physical training increases the capacity of the individual for self-preservation. Vigilance is the price of health as well as of liberty.

286. It was a quaint remark of Van Helmont that "the uterus alone makes a woman what she is." Without doubt the ovaries exert a specific influence, no less characteristic than that of the "testes" of the male. From infancy to puberty, the sex as well as the body, structurally and functionally, is in a state of gradual and progressive evolution. Men and women generally increase in stature until the twenty-fifth year, and it is safe to assume, that perfection of function is not established until maturity of bodily development is completed. (See Figs. 104 and 105). The physical contour of these representations plainly exhibits the difference in structure, and also implies difference of function. Solidity and strength are represented by the organization of the male, grace and beauty by that of the female. His broad shoulders represent physical power and the right of dominion, while her bosom is the symbol of love and nutrition. The father will encounter hardships, struggle against difficulties and brave dangers to provide for his household; the mother tenderly supplies the infant's wants, finding relief and pleasure in imparting nourishment, and surrounds helpless infancy with an affection which is unwearied with its thousand ministering attentions. Thus man and woman complement each other's being. Her maternal functions are indicated by greater breadth of the hips. Physical differences so influence their mental natures, that, "before experience has opened their eyes, the dreams of a young man and maiden differ." The development of either is in close sympathy with their organs of reproduction. Any defect of the latter, impairs our fair ideal, and detracts from those qualities which impart excellence and crown the character with perfections. Plainly has Nature marked out, in the organization, very different offices to be

performed by the sexes, and made these distinctions fundamental. (See Figs. 106 and 107).

287. Likewise, Nature expresses the intention of reproduction, by giving to plants and animals distinctive organs for this purpose. These are endowed with exquisite sensibility, so that their proper exercise is consistent with excitement and great enjoyment, beneficial to both. Excessive indulgence, however, in sexual gratification, not only prostrates the nervous system, enfeebles the body and drains the blood of its quickening elements, but it is inconsistent with intellectual activity, moral soundness, or spiritual development. The most entrancing delights, and consummate enjoyments are of the emotive order, ideal, abstract and pure, so spirit-inspiring and joy-transporting, that they antagonize the grosser sensual pleasures and shed their own sweet chastity and refining elegance over all the processes of life.

288. Hence the gratification of the sexual instincts, when lawful, should always be moderate. With the male, previous to the very instant of emitting the seminal fluid, the act is *voluntary*, and the emission can be stopped. But if allowed to continue, the glans becomes the seat of a completely new and specific sensibility, which is attended by an *involuntary* contraction of the ejaculatory muscles that discharge the semen. It is only the final orgasm that is uncontrollable. Therefore sexual intercourse can be regulated and restricted by the judgment and will, and kept within the bounds of health. No person has a moral right to carry this indulgence so far as to produce injurious consequences to either party, and he who cannot refrain from furious sexual excitement, is in no proper condition to propagate his species. As an act of physical and spiritual communion, it should always be regulated by prudential considerations, and when exercised with a view to procreation, it should be employed when all the faculties not only consent, but desire offspring. In all culture, there must be self-control, and the practice of self-denial at the bidding of love and right, is always esteemed a virtue. It is a manly trait, and ranks with such dignities as Integrity, Uprightness, Probity and Rectitude, all expressive of the moral excellence that comes from self-discipline. Self-government is the polity of our people, and we point with pride and laudable exultation to our political maxims, laws and

free institutions. The principles of the family, type that of society. If self-restraint is practiced in the family relation, then the principle of self-control will carry health, strength and morality into all parts of the common-wealth. The leading characteristics of any nation are but the reflection of the traits of its individual members, and thus the family, truly typifies the practical morality and enduring character of a people.

OVULATION.

289. The Ovaries are those essential parts of the generative system of the human female, in which ova are matured. There are two Ovaries, one on either side of the uterus, and connected with it by the Fallopian tubes; they are ovoid bodies about an inch in diameter, and furnish the *germs* or ovules. These latter are very minute, seldom measuring 1-120th of an inch in diameter, and frequently they are not more than half that size. The ovaries develop with the growth of the female, so that finally at the pubescent period they ripen and liberate an ovum or germ vesicle, which is carried into the uterine cavity by the Fallopian tubes. By the aid of the microscope, we find that these ova are composed of granular substance, in which is found a miniature yolk surrounded by a transparent membrane, called the *zona pellucida*. This yolk contains a germinal vesicle, in which can be discovered a nucleus, called the *germinal spot*. The process of the growth of the ovaries is very gradual, and their function of ripening and discharging one ovum monthly into the Fallopian tubes and uterus, is not completed until between the twelfth and fifteenth years.

290. This period, which indicates, by the feelings and ideas, the desires and will, that they are capable of procreation, is called Puberty. The mind acquires new and more delicate perceptions, the person becomes plumper, the mammæ enlarge, and there is grace and perfection in every movement, a conscious completeness for those relations of life to which this function prepares them. The period of puberty is also indicated by

MENSTRUATION.

291. The catamenial discharge naturally follows the ripening and liberation of an ovum, and as the ovaries furnish one of these

each month, this monthly flow is termed the *menses*, the plural of *mensis*, a month. The menstrual flow continues from three to five days, and is merely the exudation of ordinary venous blood through the mucous surface of the cavity of the uterus. At this time, the nervous system of females is much more sensitive, and from the fact that there is greater aptitude to conception immediately before and after this period, it is supposed that the sexual feeling is then the strongest. When impregnation occurs immediately before the appearance of the menses, their duration is generally shortened; though not sufficiently to establish the suspicion that conception has taken place. The germ is the contribution of the female, which provides the conditions that need the vivifying principle of life for the development of another being. The period of aptitude to conception terminates when both ovulation and the menses cease, which, unless brought about earlier by disease, usually occurs about the fortyfifth year of age.

FECUNDATION.

292. Whereas, in the beginning, God created male and female, and said unto them, "Be fruitful, and multiply and replenish the earth," it indicates that what was originated by creation must be continued by *procreation*. The process of generation, the reader will find described in ¶ 18-19. Then commences a wonderful series of transforming operations, rudimentary changes preliminary to the formation of tissues, structures and functions which finally qualify the organization for independent existence. Immediately upon the conjugation of two infinitesimally small particles of matter, called the sperm and germ-cells, or their mere "*touching*" each other, the germ acquires a new disposition to *adhere* to any organ or part with which it happens to come in contact. It instinctively endeavors to establish an advantageous connection, in order to draw supplies of nutrient material for purposes of development. Such a union, wherever it may take place, is technically termed *Conception*. The condition which follows it, is called *Pregnancy*. The impregnated ovum is liable to form a connection with any organ where it is permitted to remain. Fecundation may occur at the Ovaries, within the Fallopian Tubes or in the cavity of

the Uterus. The latter organ is specially designed to receive and nourish the fecundated germ, and when it fixes itself upon its internal surface, it is called *Uterine Pregnancy*. This conception is natural and favorable for both the mother and embryo. When it adheres to other organs it is an unnatural conception, and not safe for either.

293. If the fecundated germ adheres to the ovary, it is termed *Ovarian Pregnancy*. If it attaches to the fallopian tubes, it is called *Tubal Pregnancy*. If in consequence of a mis-step, blow or fall, it is precipitated into the abdominal cavity, it will unite to the parts with which it comes in contact, and is then designated as *Ventral Pregnancy*. If the microscopic germ lodges in some slight interstice of fibres, during its passage through the walls of the uterus, it may be detained long enough to fix itself there, and when it does so, it is termed *Interstitial Pregnancy*. All of these misconceptions may necessitate the employment of surgical skill, in order that they may terminate with safety to the mother. Their occurrence, however, is very rare.

294. One result of the sexual embrace is *Insemination*, by which term we understand that the sperm is left within the genital passages, generally at the superior portion of the vagina, near the mouth of the uterus. The duration of the interval between insemination and fecundation may be longer or shorter, depending upon circumstances. If the sperm-cell travels to the ovarium, it takes generally from three to five days to make the journey. Its transportation is aided by the ciliary processes (little hairs) of the mucous surface of the vaginal and uterine walls, as well as by its own vibratile movements. The action of the cilia, under the stimulus of the sperm, seems to be from without, inward. Even if a minute particle of sperm, less than a drop, be left upon the margin of the external genitals of the female, it is sufficient in amount to impregnate, and can be carried, by the help of these cilia, to the ovaries. The liability to fecundation is not only great, but imminent. Where all the organs are healthful, the capacity, tendency — *aptitude* is almost irrepressible. This proclivity is so constant and unfailing, that it is almost absolutely uncontrollable. It is so natural and potent a disposition, that any amount of prudence and the most careful precautions, sometimes entirely fail to prevent pregnancy.

PREVENTION OF CONCEPTION.

295. Much has been written upon this subject, and upon the right that matrimonial parties have to decline the responsibilities of wedlock. The practice of inducing abortion is not only immoral but criminal, because it is destructive to both health and life. If the parties to a marriage are both feeble, or if they are temperamentally unadapted to each other so that their children are deformed, insane or idiots, then to beget offspring would be a flagrant wrong. If the mother is already delicate, possessing feeble constitutional powers, she is inadequate to the duties of maternity, *and it is not right to lay such burdens upon her.* Self-preservation is the first law of nature, which all ought to respect. The woman may be able to discharge the duties of a loving wife and companion, when she cannot fulfill those of child-bearing. If the husband loves his wife as he ought, he will forego all the pleasure necessary to secure her exemption from the conditions of maternity; it seems to us, that it is a great wickedness, unpardonable even, to be so reckless of consequences, and so devoid of all feeling, as to expose a frail, feeble affectionate woman to those perils which almost insure her death. To enforce pregnancy under such circumstances is a horrible crime. Every true man will rather enforce *continent* forbearance, at all events acquire sufficient *self*-command to control all untoward events.

296. Often impregnation results without its occurrence having been intended, and when the possibility of its contingency was supposed to have been guarded against. The warmth of the nuptial instincts indicates the aptitude to, and imminent peril of maternity. Before the mother has recovered from the effects of bearing, nursing and rearing one child, ere she has regained proper tone and vigor of body and mind, she is unexpectedly overtaken, *surprised* by the manifestation of symptoms which again indicate pregnancy. Children thus begotten cannot become hardy and long-lived. By the love that parents may feel for their posterity, by the wishes for their success, by the hopes for their usefulness, by every consideration for their future well-being, let them exercise precaution and forbearance until the wife becomes sufficiently healthy and enduring to bequeath her own rugged, vital stamina to the child she bears in love.

297. We do not feel at liberty to discuss the means, most consistent with health and nature, which may tend to remedy these evils. The absolute prevention of conception is inconsistent with the full enjoyment of marital pleasures, and we do not wish to make any suggestions, a knowledge of which might lead bad men or women into the propagation of wrong. All good may be perverted and become the cause of evil, therefore, while acting with pure intents, we think it is better to refrain from giving any counsels or directions which may be turned to improper account. Beyond the imparting of instruction, and giving advice and admonition concerning the dangers which surround this subject, we do not feel it our duty, personally, to assume any responsibility whatever. Our sympathies, always susceptible to the conditions of sorrow and suffering, have been enlisted to give faithfully, explicitly and plainly, warnings of danger and exhortations to prudence, and nothing remains to us but to maintain the principles of morality, and leave to the disposal of a wise and overruling Providence the mystery of all seemingly untoward events. In every condition of life evils arise, and most that are encountered are avoidable. Humanity is held accountable for those which it might, but does not shun.

298. This anomaly in law and morals exists,—that by a statute of the general government, prevention of pregnancy is considered an offense to be visited by penalties, whereas every physician is instructed by our standard writers and approved lecturers on this subject, that not only prevention is necessary in many instances, but that abortion must sometimes be produced in order to save the mother's life. As we view the matter, the law of the general government asserts the ruling principle, and the exceptions to it must be well established by evidence, in order to fully justify such procedure. The only safety is in moral consistency of life, and even when governed by the highest dictates of right, mankind encounters trials and difficulties sufficient to test the strength of steady nerves and the tenacity of upright purposes.

299. After fecundation, the length of time is variously estimated, before conception takes place. Should impregnation occur at the ovary or within the fallopian tubes, usually about a week elapses before the return of the fertilized germ to the

uterus, so that ordinarily the interval between the act of insemination and that of conception varies from eight to fourteen days.

DOUBLE CONCEPTION.

300. If two germs be evolved simultaneously each may be impregnated by spermatozoa, and a twin pregnancy be the result. This is by no means a rare occurrence. It is very unusual, however, to have one birth followed by another, after an interval of three or four months, and each babe present the evidence of full maturity. Perhaps such occurrences may be accounted for as follows: Allow the same interval of time between the impregnation of the two germs as there is difference observed in their birth; that after the act of insemination, sperm was carried to each ovary; one had matured a germ ready for fecundation, then impregnation and conception immediately followed, and the decidua of the uterus hermetically sealed both fallopian tubes, and thus securely retained the sperm within the other fallopian canal. The stimulus of the sperm so pent up, causes that ovary to mature a germ, although it may do so slowly, and after two or three months it is perfected, fertilized and a second conception occurs within the uterus. If each embryo observes a regular period of growth and each be born at maturity, there must be an interval of two or three months between their birth. But it is far more common for the parturition of the first, displaying signs of full maturity, to be attended by the birth of a second, which is immature and cannot sustain respiratory life. The birth of the latter was brought about prematurely, by the action of the uterus in expelling the matured child.

UTERINE PREGNANCY.

301. There are many who manifest a laudable desire to understand the physiology of conception, the changes which take place and the order of their natural occurrence. If impregnation has taken place at the ovaries or within the fallopian tubes, the uterus becomes conscious of the fact, and anticipates the arrival of the fertilized germ within its cavity, by making certain necessary preparations for its safe reception. To this end, there is exuded upon its inner surface a peculiar nutritious substance. It

flows out of the minute porous openings, surrounding the termination of the fallopian tube within the uterine cavity, and thus is in readiness to receive the germ, and retain it there until it becomes attached. Undoubtedly the germ imbibes from this matter, materials for its nurture and growth. This membranous substance is termed the *Decidua*, and disappears after conception is insured. Two membranes form around the embryo; the inner one is called the *Amnion*, the outer one, the *Chorion*. Both serve for the protection of the embryo, and the inner one contains the liquor amnii in which it floats during intra-uterine life. Immediately after conception, the small glands in the neck of the uterus usually throw out a sticky secretion, uniting the sides of, or filling the canal, so that nothing may enter or leave the uterine cavity.

302. The fertilized ovum rapidly develops. Undoubtedly after its conception, it imbibes nourishment, and without question there is a disposition of fluids to pass into it, through its delicately organized membranes. If this process is not involuntary, yet at all events, it is at the convenience and use of the developing germ. After three months the embryo is termed the *fœtus*. Its fluids are then so much more highly organized, that some of them are tinged with sanguine hues, and thence forward acquire the characteristics of red blood. Out of red blood, blood-vessels are formed, and from the incipient development of the heart, follow faint lines of arteries, and the engineers of nutrition survey a circulatory system, perfecting the vascular connections by supplementing the arteries with a complete net-work of veins.

THE PLACENTA OR "AFTERBIRTH."

303. Whenever conception occurs, a soft spongy substance is formed between the uterus and the growing ovum, called *Placenta* (a Latin word signifying a cake). It is composed of membrane, cellular tissue, blood-vessels and connecting filaments. The principal use of this organ in the latter period of pregnancy seems to be, to decarbonize the blood of the *fœtus*. This is accomplished on the same principle that blood is oxygenized by the lungs. True, air is admitted directly to the lung membranes, but not to the placenta, yet the blood that is oxygenized by the lungs

circulates in the uterus, and there yields its equivalents of oxygen to the fœtal blood in the placenta, and receives in return equal measures of carbonic acid. This interchange of gaseous commodities takes place in the placenta or between it and the uterus, the intervening membranes offering no obstacle—in fact, promoting the mutual diffusion. This decarbonizing function presupposes the agency of the maternal lungs, for the purpose of oxidizing the mother's blood.

304. The nature of the union of the placenta and uterus is one of simple adhesion. True, in some instances morbid adhesion takes place, or a growing together in consequence of inflammation, but the natural junction is one merely of contact, the membranes of the placenta spreading out upon the cavity of the uterus, so that finally the former may be entirely removed without a particle of disturbance or injury to the latter. Formerly it was supposed that the placental vessels penetrated into the substance of the uterus. Latterly, we know that there is no such continuation of the vessels of the one into the other; in fact, in health there is no *direct* vascular connection, for none is needed. The decarbonization of the blood requires the placental and uterine membranes to be in contiguous relation, *i. e.*, in contact with each other.

305. If the union was vascular, the mother's blood would circulate in the fœtal body, and the impulses of the maternal heart might prove too strong for the delicate organization of the embryo. Besides, the separation of the placenta from the uterus might prove fatal to both parent and offspring. The placenta is only a temporary organ, and when its functions are no longer required, is easily and safely removed.

UMBILICAL CORD.

306. The fœtal blood is transported to and fro between the body of the child and the placenta, by a cord which has two arteries and one vein; it is called the umbilical cord, because it enters the body at the middle of the abdominal region or navel. It is composed also of its own proper membranous sheath or skin, and cellular tissues, besides the blood-vessels. Two months after pregnancy, this cord can be seen, when it commences to grow rapidly.

QUICKENING.

307. Not until the mother feels motion, is she said to be quick with child. That is, the child must be old and strong enough to communicate a physical impulse, which the mother can distinctly perceive, before it is regarded as having received life. This is another old foggy falacy, for the germ had to be endowed with life to commence organization. The act of impregnation communicated the vital principle, and from that moment it started upon its career of development. A long period elapses after this occurs before it can make the mother feel its motions. Before quickening, the attempt to destroy the fœtus is not considered so grave a crime by our laws, but after this quickening takes place, it is deemed a felony.

RIGHT TO TERMINATE PREGNANCY.

308. The expediency and the moral right to prematurely terminate pregnancy must be allowed, if weighty and sufficient reasons for it exist. It should never be undertaken, however, without the advice and approval of the family physician, and whenever it is possible, the counsel of another medical practitioner should be obtained. There may be so great a malformation of the pelvic bones as to preclude delivery at full term, or, as in some instances, the pregnant condition may jeopardize the life of the mother, because she is not able to retain nourishment upon the stomach. Those disqualified for maternal duties, by *whatever cause* should seek counsel on this subject, from some well informed physician, who, if he becomes perfectly satisfied that conception ought to be avoided, will give such advice as may materially lessen the liabilities of such an undesirable event.

309. Those who are qualified for maternal duties, should not undertake to defeat the intentions of nature, simply because they love ease and dislike responsibility. Such may be considered *genteel* ladies, but practically, they are indifferent to the claims of society and of posterity. How such selfishness contrasts with that glorious, heroic, Spartan spirit, of the young woman who consulted us in reference to the acceptance of a tempting offer of marriage. She was below medium size and delicately organized. She hesitated in her answer, because she was uncertain as to her

duty to herself, to her proposed husband and the prospective contingencies of matrimony. After she was told that it was doubtful whether she could discharge the obligations of maternity with safety to herself, and yet, that she might prove to her intended husband, a true and invaluable wife, she quickly answered, her black eyes all radiant with the high purpose of her soul: "If I assent to this offer, I shall accept the condition and its consequences also, even if the sequence is pregnancy, and I know it will cost me my life!" She acceded to the proposal and years found them one in happiness—then a daughter was born, but the bearing and nursing was too much for her delicate organization, and she continued to sink until she found rest in the grave. Of all her beautiful and noble sayings, none reflect more moral grandeur of spirit, than the one in which she expressed her intent and purpose to prove true to posterity.

SIGNS OF PREGNANCY.

310. The symptoms that indicate pregnancy are: cessation of the menses, enlargement of the mammæ, morning sickness, distention of the abdomen and movement of the fœtus. A married woman has a right to suspect that she may have conceived, when at a proper time she fails to menstruate, especially when she knows that she is liable to become pregnant. A second menstrual failure strengthens this conclusion, although there are many other causes that might prevent the appearance of the catamenia, as disease of the uterus, general debility, taking cold, etc., and all of these should be taken into account. In the absence of all apparent influences calculated to obstruct the menses, the presumption ordinarily is, that pregnancy is the cause of their non-appearance. The evidence is still more conclusive, when the mammæ and abdomen enlarge after experiencing morning sickness. Notwithstanding all these symptoms, the audible sound of the heart or the movements of the fœtus, are the only *infallible* signs of a pregnant condition.

DURATION OF PREGNANCY.

311. The ordinary duration of pregnancy is forty weeks or 280 days. The difficulty in telling exactly when a pregnancy will be completed, is in not knowing precisely when it began.

Some gestations are more protracted than others, but the average duration is the time we have given. A very reasonable way to compute the term, is to reckon three months back from the day when the menses ceased, and then add seven days to that time, which will be the date, in the following year, of the expected time of confinement. It is customary, also, for women to count from the middle of the month after the last appearance of the menses, and then allow ten *lunar* months for the term. This computation will prove correct, except in those instances where conception takes place, immediately before the last appearance of the catamenia. A few women can cast the time of labor from the occurrence of quickening—the time when they first feel the motion of the fœtus—allowing eighteen weeks for time past, and at the conclusion of twenty-two more, expecting the confinement. With those in whom quickening occurs regularly, in a certain week of pregnancy, this calculation may prove nearly correct.

312. The English law fixes no precise limit for the legitimacy of the child. In France a child is regarded as lawfully begotten, if born within three hundred days after the death or departure of the husband. There are a sufficient number of cases on record to show, that gestation may be prolonged two and even three weeks beyond the ordinary or average term. The variation of time may be thus accounted for; after insemination, a considerable interval elapses before fecundation takes place, and the passage of the fertilized germ from the ovary to the uterus is also liable to be retarded. There are many circumstances and conditions which might serve to diminish its ordinary rate of progress, and postpone the date of conception. This would materially lengthen the *apparent* time of gestation.

It is likewise difficult to determine the shortest period at which gestation may terminate, and the child be able to survive. A child may be born and continue to live for some months, after twenty-four or twenty-five weeks of gestation; it was so decided, at least, in an ecclesiastical trial.

313. It will not be expected that the author will dwell minutely or at length, upon the formation and growth of the fœtal structures, and trace them separately from their origin, to their completion at the birth of the child. The student of medicine

must gain information by having access to large works and exhaustive treatises upon this interesting subject.

314. What trifling contingencies defeat vitality! Conception may be prevented by virulent secretions—disease of the reproductive organs. Lencorrhœal matter may destroy the life-property of the sperm-cells. There are many ways, even after impregnation, of compromising the existence of the frail embryo. Accidents, injuries, falls, blows, acute diseases, deficiency of nutrition and development, in fact, a great variety of occurrences may shorten the intra-uterine career. After birth, numerous diseases besiege the child. By what constant care must it ever be surrounded, and how often is it snatched from the very jaws of death!

What then is man but simply a germ, evolving higher powers, and destined for a purer, nobler existence. His latent life secretly emerges from mysterious obscurity, is incarnated, and borne upon the flowing stream of time to a spiritual destination—to realms of immortality! As he nears those ever-blooming shores, the eye of faith, illumed by the inspired word, dimly discerns the perennial glories. Quickened by Faith, Hope and Love, his spirit is transplanted into the garden of paradise, the eden of happiness, redeemed, perfected, and made glorious in the divine splendor and image of Him who hath said, “I am the Way, the *Truth* and the *LIFE*.”

PART II.

HYGIENE.

CHAPTER I.

HYGIENE DEFINED.—PURE AIR.

315. The object of hygiene is the *preservation of health*. Hitherto, we have considered, somewhat at length, the science of functions, or *Physiology*, and now, the best means to *maintain* the functional integrity of the system, appertains to *Hygiene*. It is almost impossible not to include under this head Preventive Medicine, the special province of which is to abate, remove or destroy the many causes of disease.

316. The Greeks invested Æsculapius, (the God of Medicine), with divine honors, because he *remedied* and thus restored the sick. Hygiea, for being the protectress of health, was made a goddess. As male and female are one in wedlock's functions, so Medicine and Hygiene, restoration and preservation are practically united.

Hygiene inculcates sanitary discipline, medical practice, remedial discipline; hygiene prescribes healthful agencies, theory and practice, medicinal agencies; hygiene ministers with salubrious and salutary agents, medicine assuages with rectifying properties and qualities; hygiene upholds and sustains, medical practice corrects and heals; the one is preservative and conservative, the other curative and restorative. These discriminations are as radical as health and sickness, as distinct as physiology and pathology,

and to confound them is as unnatural as to look for the beauties of health in the chamber of sickness.

317. The true physician will bring to his aid, Physiology, Hygiene and Medicine, and usefully combine the science of the former with the art of the latter, that restoration may be made permanent, and the health preserved by the aid of hygiene. But when any one makes Hygiene exclusively the doctor, or deals wholly in hygienic regulations with little respect for physiology, or lavishly advertises with hygienic prefixes, we may at once consider it a display, not of the genuine live goddess, but only that of a dummy. Some of the modern hygienic twaddle about health is the cheapest conglomeration of the poorest kind of trash, expressing and inculcating more errors and whims than it does common sense. Persons dilate upon these subjects with amazing flippancy, and in some places one might imagine himself surrounded by Æsculapian goddesses, whose mission was to traduce the profession rather than to act as "help meets" and assistants. We do not believe that there is any real contention going on between the true divinities of the healing art, but that the senseless clamor we occasionally hear comes only from the stampede of some routed, demoralized company of quacks.

318. In the following pages we shall introduce to the reader's attention, several important hygienic subjects, although there are many more that ought to receive special notice. Such as we do mention, demand universal attention, because a disregard of the conditions which we shall enumerate, is fraught with great evil. Our lives are lengthened or shortened by the observance or non-observance of the rules of common sense, and these require no great personal sacrifice or the practice of absurd eccentricities.

PURE AIR FOR RESPIRATION.

319. Perfect health requires that the air inhaled should contain at least twenty per cent. in volume, of oxygen. The venous blood flowing to the lungs absorbs this vivifying element, and returns to the heart, from which it is again sent out to stimulate and replenish the tissues. At each respiration the inhaled air is affected in a threefold manner, viz: (1.) Its oxygen is diminished; (2.) Its carbonic acid increased; (3.) A certain quantity of watery vapor is absorbed before it is expelled from the lungs.

When the air is dry and pure, respiration will be free and perfect. The existence of moisture interferes with the exhalation of vapor and carbonic acid. The presence of more than three and one-half per cent. of carbonic acid vitiates the atmosphere and renders it unfit for inhalation. Air in which lamps burn dimly has become loaded with poisonous gases. This condition frequently obtains in crowded lecture rooms, concert and opera halls; and is the cause of the faintness and languor often noticeable at these places of amusement. The Black Hole of Calcutta is an excellent illustration of the effect of vitiated air. One hundred and forty-six Englishmen were confined in a room eighteen feet square, with two small windows on one side to admit air. Ten hours after their imprisonment, only twenty-three were alive.

320. **Ventilation of School Rooms.** The depression and faintness from which many students suffer, after being confined in an ill ventilated study room, is clearly traceable to vitiated air, while the evil is assigned to excessive mental exertion. The effect of ventilation upon the health of students, is a subject of universal interest to parents and educators, and at present is receiving the marked attention of school authorities. Frederick Windsor, M. D., of Winchester, made a few remarks pertinent to this subject in the annual report of the State Board of Health of Massachusetts, 1874. One of the institutions, which was spoken of in the last report of 1873, as a *model*, in the warming and ventilation of which, much care had been bestowed, was visited December, 1873. The report is as follows: "I visited several of the rooms, and found the air in all, offensive to the smell, the odor being such as one would imagine old boots, dirty cloths and perspiration would make if boiled down together;" again, "in the new *model* school-house the hot air enters at two registers in the floor on one side, and makes (or is supposed to make) its exit by a ventilator at the floor, on the other side of the room." The master said *the air was "supposed to have some degree of intelligence, and to know that the ventilator was its proper exit."* Thorough ventilation has been neglected by many school officials on account of the extra expense it incurs. In our climate, during seven months at least, pure atmospheric air must be paid for. The construction

of vertical ducts, the extra amount of fuel, and the attendant expenditures are the objections which, in the computation of many educators, outweigh the health and happiness of the future generation. Three conditions are necessary for the thorough ventilation of our study rooms, viz: (1.) An adequate supply of fresh air. (2.) It should be warmed before being admitted into the room, and (3), it should be discharged as contaminated, after its respiration. The ventilation of the school room, consists, like the respiratory movements, of a triple process, the warming and introduction of fresh air from without and the discharge of the respired and unwholesome air from within. This is accomplished by means of doors, windows, chimneys, and lastly of ventilators placed, one near the level of the floor, and the other near the ceiling of the room. The ventilators ought to be arranged on the opposite sides of the room, in order to insure a current, and an abundant supply of air. When trustees and patrons learn that pure air is absolutely essential to health, and that their children are being slowly poisoned by the foul air of school-rooms, then they will construct our halls of learning with a just regard for the laws of hygiene, and students will not droop under their tasks on account of the absence of Nature's most bountiful gift, PURE AIR.

321. **Ventilation of Factories and Workshops.** This is a subject which demands the immediate attention of manufacturers. The odors of oil, coal gas and animal effluvia render the atmosphere foul and stagnant and often give rise to violent diseases among the operatives. From two to four hundred persons are often confined in workshops, six hundred feet long, with no means of ventilation except windows *on one side only*. The air is breathed and re-breathed, until the operatives complain of languor and headache, which they attribute to "over-work." The manufacturers pompously talk of "*discharge*," if the labor paid for is not accomplished. The *real* cause of the headache and non-fulfillment of duties, is literally the inhalation of *twenty cubic inches of poison* at every expansion of the lungs. If the proprietors would provide efficient means for ventilating their workshops, the cost of construction would be repaid with compound interest, in the better health of their operatives and the consequent increase of labor. Our manufacturers must learn

and practice the great principle of political economy, viz: that the interests of the laborer and employer are reciprocal.

322. **Ventilation of our dwellings.** Not less important is the ventilation of our dwellings; each apartment should be provided with some channel for the escape of the noxious vapors constantly accumulating. Most tenements (built by miserly millionaires), and occupied by the poor of our cities, are literally "dens" of poison. Their children inhale disease with their earliest breath. What wonder that our streets are filled with squalid, wan-visaged children! Charity visits these miserable "HOMES" (?) bringing garments and viands to their half-famished inmates; but she has been slow to learn, that fresh air is as essential to life as food or clothing. Care should be taken by the public authorities of every city, that its tenement houses do not degenerate into foul hovels, like those of the poor English laborer, so graphically portrayed by Disraeli. But ill-ventilated rooms are not found exclusively in the abodes of the poor. True in the homes of luxury, the effect of vitiated air is modified by food, etc. Men of wealth give far more attention to the architecture and adornment of their houses, to costly decorations and expensive furniture, than to proper ventilation. Farmers too are derelict in the construction of their cottages. Their dwellings are often built, for convenience, in too close proximity to the barn. Because they do not construct a suitable sewer or drain, the filth and refuse food is "thrown out of the back door," where it undergoes putrefaction; the vitiated air penetrates the interior of the house, and, there being no means of ventilation, it remains to be respired by the occupants. The result is, that for the sake of saving a few dollars, which ought to be expended in the construction of flues and sewers, the farmer often sees the child he prizes far above his "broad acres" gradually decline, or suddenly fall a victim to fevers or malignant disease. Parents, make your homes healthy, let in the pure, fresh air and bright sunlight, so that your conscience may never upbraid you with being neglectful of the health and lives of your little ones.

SITE FOR HOMES.

323. **Malaria.** Upon the subject of constructing our residences, besides securing proper ventilation and adequate

drainage, we ought to select the location for a homestead, on dry soil. Low levels, damp surroundings and marshy localities not only breed malaria and fevers, but are a prolific cause of colds, coughs and consumption. Some care should be taken not to locate a dwelling where the natural currents of air, or high winds, will be likely to bring the poison of decayed vegetable matter from low lands. Certain brooks, boggy land, ponds, foggy localities, too much shade, all these are favorable to the development of disease. Then the walls of a building should be so constructed as to admit air between the exterior and interior surfaces, otherwise the interior of the house will be damp and unwholesome. In the dead of winter, in northern latitudes, the house ought to be kept slightly tempered with warmth, both night and day, a condition very favorable to the introduction and change of atmospheric currents. The invigorating tendencies of a dry, pure atmosphere are remarkably beneficial, while air charged with moisture and decay is exceedingly baneful, introducing diseases under various forms.

324. Neither should the dwelling be shaded by dense foliage. The dampness of the leaves tends to attract malaria. Trees growing a little distance from the house however, have the power of obstructing the transmission of unhealthy vapors arising beyond them. Malaria generally travels near the surface of the earth, and seems to be more abundant in the night time. Persons sleeping in the upper story of a house may escape its morbid influence, while those occupying apartments on the lower floor, become affected.

DAMP CELLARS.

325. Damp cellars, under residences, are a fruitful cause of disease. Dr. Sanford B. Hunt, in an article appearing in the *Newark Daily Advertiser*, speaking of the recent epidemic of diphtheria in New York City, says:

“Pestilences that come bodily, like cholera, are faced and beaten by sanitary measures. Those which come more subtly need for their defeat only a higher detective ability and a closer study of causes, many of which are known, but hidden under the cellars of our houses, and which at last are only preventable by public authority and at public expense in letting out the

imprisoned dampness which saturates the earth on which our dwellings are built. Where wood rots, men decay. This is clearly shown in the sanitary map printed in the *Times*. In the great district surrounding Central Park, and which participates in its drainage system, there are no cases. On the whole line of Fifth Avenue there are none. The exempt districts are clearly defined by the character of the soil, drainage, and sewerage, and by the topography, which either has natural or artificial drainage, but most of which is so dry that only surface-water and house-filth—which does not exist in those palaces—can affect the health of the residents. But in the tenement houses and on the made lands where running streams have been filled in and natural springs choked up by earth fillings, diphtheria finds a nidus in which to develop itself. The sanitary map coincides precisely with the topographic map made by Gen. Viele. Where he locates buried springs and water-courses, there we find the plague spots of diphtheria and in the same places, on previous maps prepared by the Board of Health, we find other low types and stealthy diseases, such as typhoid and irruptive fevers, and there we shall find them again when the summer and autumnal pestilences have yielded place to those which belong to the indoor poisoned air in the winter. The experience of other cities, notably London and Dublin, once plague spots and now as healthy as any spot on earth, proves that most of the causations of disease are within the control of the competent sanitary engineer, even in localities crowded beyond American knowledge, and houses built upon soil saturated for centuries with the offal of successive and uncleanly generations. Wet earth, kept wet by the boiling up of imprisoned springs, is a focus of disease. Dry earth is one of the most perfect deodorizers, the best of oxydizers and absorbents, destroying the germs of disease with wonderful certainty. On those two facts rests the theory of public hygiene."

DUST AND DISEASE.

326. The air we breathe is heavily loaded with minute particles of floating dust, their presence being revealed only by intense local illumination. Professor Tyndall says: "solar light, in passing through a dark room, reveals its track by illuminating the dust floating in the air. 'The sun,' says Daniel Culverwell,

‘discovers atoms, though they be invisible by candle-light, and makes them dance naked in his beams.’”

327. After giving the details and results of a series of experiments in which he attempted to extract the dust from the air of the Royal Institute by passing it through a tube containing fragments of glass wetted with concentrated sulphuric acid, and thence through a second tube containing fragments of marble wetted with a strong solution of caustic potash, which experiments were attended with perfect failure, the professor continues, “I tried to intercept this floating matter in various ways; and on the day just mentioned, prior to sending the air through the drying apparatus, I carefully permitted it to pass over the tip of a spirit-lamp flame. The floating matter no longer appeared, having been burnt up by the flame. It was, therefore, of *organic origin*. I was by no means prepared for this result; for I had thought that the dust of our air was, in great part, inorganic and non-combustile.” In a foot note he says “according to an analysis kindly furnished me by Dr. Percy, the dust collected *from the walls* of the British Museum contains fully fifty per cent. of inorganic matter. I have every confidence in the results of this distinguished chemist; they show that the *floating* dust of our rooms is, as it were, winnowed from the heavier matter.” Again he says: “the air of our London rooms is loaded with this organic dust, nor is the country air free from its presence. However ordinary daylight may permit it to disguise itself, a sufficiently powerful beam causes dust suspended in air to appear almost as a semi-solid. Nobody could, in the first instance, without repugnance, place the mouth at the illuminated focus of the electric beam and inhale the thickly-massed dust revealed there. Nor is the repugnance abolished by the reflection that, although we do not see the floating particles, we are taking them into our lungs every hour and minute of our lives.” “The notion was expressed by Kircher and favored by Linnæus, that epidemic diseases are due to germs which float in the atmosphere, enter the body, and produce disturbance by the development within the body of parasitic life. While it was struggling against great odds, this theory found an expounder and a defender in the President of this institution. At a time when most of his medical brethren considered it a wild dream, Sir

Henry Holland contended that some form of the germ-theory was probably true." Professor Tyndall proposes means by the application of which air loaded with noxious particles may be freed from them before entering the air passages. The following embodies his suggestions on this point:

COTTON-WOOL RESPIRATOR.

328. "I now empty my lungs as perfectly as possible, and placing a handful of cotton-wool against my mouth and nostrils, inhale through it. There is no difficulty in thus filling the lungs with air. On expiring this air through a glass tube, its freedom from floating matter is at once manifest. From the very beginning of the act of expiration the beam is pierced by a black aperture. The first puff from the lungs abolishes the illuminated dust, and puts a patch of darkness in its place; and the darkness continues throughout the entire course of the expiration. When the tube is placed below the beam and moved to and fro, the same smoke-like appearance as that obtained with a flame is observed. *In short, the cotton-wool, when used in sufficient quantity, and with due care, completely intercepts the floating matter on its way to the lungs.*

The application of these experiments is obvious. If a physician wishes to hold back from the lungs of his patient, or from his own, the germs or virus by which contagious disease is propagated, he will employ a cotton-wool respirator. If perfectly filtered, attendants may breathe the air unharmed. In all probability the protection of the lungs and mouth will be the protection of the entire system. For it is exceedingly probable that the germs which lodge in the air-passages, or find their way with the saliva into the stomach with its absorbent system, are those which sow in the body epidemic disease. If this be so, then disease can be warded off by carefully prepared filters of cotton-wool. I should be most willing to test their efficacy in my own person. But apart from all doubtful applications, it is perfectly certain that various noxious trades in England may be rendered harmless by the use of such filters. I have had conclusive evidence of this from people engaged in such trades. A form of respirator devised by Mr. Garrick, a hotel proprietor in Glasgow, in which inhalation and exhalation occur through two different

valves, the one permitting the air to enter through the cotton-wool, and the other permitting the exit of the air direct into the atmosphere, is well adapted for this purpose. But other forms might readily be devised."

LIGHT AND HEALTH.

329. Our dwellings ought freely to admit the sunlight. Diseases which have baffled the skill of physicians have been known to yield when the patients were removed from dark rooms to light and cheerful apartments. Lavoisier placed light, as an agent of health, even before pure air. Plants that grow in the shade are slender and weak, and children brought up in dark rooms are pale, sallow and rickety. It is a false idea that would avoid sunlight for fear of spoiling the complexion, when the sun's rays are necessary to give to it the delicate tinting of beauty and health. Air is necessary to the first inspiration and the last expiration of our lives, but the purity and activity of the atmosphere depends upon the warming rays of the sun, while our bodies require light for their healthful stimuli. We know that without solar light, there can be no proper vegetable growth, and it is equally necessary for the beauty and perfection of animal development. Our dwellings should therefore be well lighted and made as bright and cheerful as possible. Women who curtain the windows, soften the light and tint the room with some mellow shade, may do so in order to hide their own faulty complexions. The skin of those who work in dungeons or in deep mines becomes pale or sickly yellow, the blood grows watery, the skin blotches and dropsy intervenes. On the other hand, invalids carried out from darkened chambers into the bright sunlight are stimulated, the skin browns, nutrition becomes more active, the blood improves and they grow convalescent. Light is especially necessary for the healthy growth of children. There is nothing more bountiful and gladdening than the glorious sunlight. Let its luminous, warming and physiological forces come freely into our dwellings, enter into the chemistry of life, animate the spirits, and pervade our homes and our hearts with its joy-inspiring and health-imparting influences.

CHAPTER II.

FOOD. BEVERAGES. CLOTHING.

330. The human body is continually undergoing changes, which commence with the earliest dawn of existence and end only with death. The old and worn out materials, are constantly being removed to make room for the new. Growth and development, as well as the elimination of worn out and useless matter, continually require new supplies, which are to be derived from our FOOD. To fulfill this requirement it is necessary that the nutriment should be of the proper quality, and of sufficient variety to furnish all the constituents of the healthy body. In order that food may be of utility, like other building materials, it must undergo preparation; the crude substance must be worked up into proper condition and shape for use, in other words it must be *digested*. But this does not end the process of supply; each different substance must be taken by the different bands of workmen, after due preparation in the work shop, to its appropriate site in the structure and there fitted into its proper place; this is *assimilation*. In reality it becomes a portion of the body and is advantageous in maintaining the symmetry and usefulness of the part to which it is assigned; this constitutes the ultimate object of food — *nutrition*.

331. **Eating** is the process of receiving the food into the mouth, *i. e.*, *prehension*; minutely dividing and mixing it with the saliva — *mastication and insalivation*; conveying it to the stomach — *deglutition*. Plenty of time should be taken, at meals, to thoroughly masticate the food and mix it with the saliva, which

being one of the natural solvents, favors its farther solution by the juices of the stomach; the healthy action of the digestive powers is favored by tranquility of mind, agreeable associations and pleasant conversation while eating. It is proverbial of the American people that they bolt their food whole, washing it down with various fluids, thus forcing the stomach to perform not only its own duties, but also those of the teeth and salivary glands. This manner of dispatching food, which should go through the natural process above described, is not without its baleful consequences, for the Americans are called a nation of *dyspeptics*.

Eating slowly, masticating the food thoroughly, and drinking but moderately during meals, will allow the juices of the stomach to fulfill their proper function, and healthy digestion and nutrition will result. If the food is swallowed nearly whole, not only will a longer time be required for its solution, but oftentimes it will ferment and begin to decay before nutritive transformation can be effected, even when the gastric juice is undiluted with the fluids which the hurried eater imbibes during his meal.

332. **Regularity of Meals** cannot be too strongly insisted upon. The stomach, as well as other parts of the body, must have intervals of rest or its energies are soon exhausted, its functions impaired, and *dyspepsia* is the result. Nothing of the character of food should ever be taken except at regular meal times. Some persons are munching cakes, apples, nuts, candies, etc., at all hours, and then wonder that they have weak stomachs. They take their meals regularly, and neither eat rapidly nor too much, and yet they are troubled with indigestion. The truth is they keep their stomachs almost constantly at work, and hence tired out, which is the occasion of the annoyance and distress they experience.

333. **Eating too much.** It should always be remembered that the nutrition of our bodies "does not depend upon the amount eaten, but upon the amount that is digested." Eating too much is about as bad as swallowing the food whole. The stomach is unable to digest all of it, and it ferments and gives rise to unpleasant results. The unnatural distention of the stomach with food causes it to press upon the neighboring organs, interfering with the proper performance of their functions,

and if frequently repeated gives rise to serious disease. People eat too much, oftener than too little, and to omit a meal when the stomach is slightly deranged, is frequently the best medicine. To rise from the table before the desire for food is quite satisfied, is an excellent plan.

334. **Late Suppers.** It is generally conceded by good authority that late suppers are injurious, and should never be indulged in. Persons who dine late, have little need of food after their dinner, unless they are to be kept up until a late hour. In such cases a moderate meal may be allowable, but it should be eaten two or three hours before retiring. Those who dine in the middle of the day should have supper, but sufficiently early that a proper length of time may elapse before going to bed, in order that active digestion may not be required during sleep. On the other hand it is not advisable to go wholly without this meal, but the food eaten should be light, easily digestible, and moderate in quantity. Persons who indulge in hearty suppers at late hours, usually experience a poor night's rest, and wake next morning unrefreshed, with a headache, and a deranged stomach. Occasionally more serious consequences follow; gastric disorders result, apoplexy is induced; or perhaps the individual never wakes.

335. **Feeding Infants.** For at least six or seven months after birth, the most appropriate food for an infant is its mother's milk, which, when the parent is healthy, is rich in all the elements necessary for its growth and support. Next to the mother's milk, that of a healthy nurse is to be preferred: in the absence of both, milk from a cow that has recently calved is the most natural substitute, in the proportion of one part water to two parts milk slightly sweetened. The milk used should be from but one cow. All sorts of paps, gruels, panadas, cordials, laxatives, etc., should be strictly prohibited, for their employment as food cannot be too severely censured. Vomiting, diarrhœa, colic, green stools, griping, etc., are the inevitable results of their continued use. The child should be fed at regular intervals, of about two hours, and be limited to a proper amount each time, which, during the first month, is about two ounces. From 11 P. M. to 5 A. M. the child should be nursed but once. As the child grows older the intervals are to be lengthened, and the amount taken at a time gradually increased. The

plan of gorging the infant's stomach with food every time it cries, cannot be too emphatically condemned.

336. After the sixth or seventh month, in addition to milk, bits of bread may be allowed, slowly increasing the quantity, thus permitting the diet to change gradually from fluid to solid food, so that when the teeth are sufficiently developed for mastication, the child has become accustomed to various kinds of nourishment. Over-feeding, and continually dosing the child with cordials, soothing syrups, etc., are the most fruitful sources of infant mortality and should receive the condemnation of every mother in the land.

337. **Preparation of Food.** The production of pure blood requires that all the food selected should be rich in nutritious elements, and well cooked. To announce a standard by which all persons shall be guided in the selection and preparation of their food is impossible. Especially does this apply in a country, the inhabitants of which represent almost every nation on the face of the globe. Tourists are aware that there is as much diversity in the articles of food and methods of cookery, among the various nationalities, as in the erection of dwellings and their varied mental characteristics. In America we have a conglomeration of all these peoples; and for a Yankee to construct rules of cookery for his German, French, English, Welsh and Irish neighbors, or *vice versa*, is useless, for neither profits by, and seldom reads them. There are, however, certain conditions recognized by the hygienists of every nation. The adequate nutrition of the organic tissues demands a plentiful supply of pure blood, otherwise the digestive apparatus will become impaired, the mental processes deranged, and the entire bony and muscular systems will lose their strength and elasticity, and be incapacitated for labor.

338. **Different Kinds of Food Required.** The different periods and circumstances of life, require their appropriate food, and the welfare of mankind demands that it should supply both the inorganic and organic substances employed in the development of every tissue. The inorganic elements employed in our construction of which *Phosphorus*, *Sulphur*, *Soda*, *Iron*, *Lime* and *Potash* are the most prominent, are not considered as aliments, but are found in the organic kingdom, variously

arranged and combined with organic materials in sufficient quantities for ordinary purposes. When, however, from any cause, a lack of any of these occurs, so that their relative normal proportions are deranged, the system suffers, and restoration to a healthy condition can only be accomplished by supplying the deficiency; this may be done by selecting the article of food richest in the element which is wanting, or by introducing it as a medicine. It must be remembered, that those substances which enter into the construction of the human fabric, are not promiscuously employed by nature, but that each and every one is destined to fulfill a definite indication.

339. *Lime* enters largely into the formation of bone, either as a *phosphate* or a *carbonate*, and is required in much greater quantity in early life while bone is undergoing development, than afterwards. In childhood the bones are composed largely of animal matter, being pliable and easily moulded. For this reason the limbs of young children bend under the weight of their bodies and unless care is taken they become "bow-legged" and distorted. Whenever there is a continued deficiency of the earthy constituents (see ¶ 30) disease of the bones will follow. Therefore, during childhood and particularly during the period of dentition (teething), the food should be nutritious and at the same time contain a due proportion of lime, which is preferable in the form of a phosphate. When it cannot be furnished by the food, it should be supplied artificially. Delayed, prolonged and tedious dentition generally arises from a deficiency of lime.

With the advance of age it accumulates and the bone becomes hard, inelastic, and capable of supporting heavy weights. Farther on, as in old age, the animal matter of bone becomes diminished, and lime takes its place so that the bones become brittle and are easily broken. Lime exists largely in "hard water" and to a greater or less extent in milk, and in nearly all foods, except those of an acid character.

340. *Phosphorus* exists in various combinations in different parts of the body, particularly in the brain and nervous system. Persons who perform a large amount of mental labor require more phosphorus than those engaged in other pursuits. It exists largely in the hulls of wheat, in fish and in eggs. It should enter to a considerable extent into the diet of brain

workers, and the bread consumed by them should be made of unbolted meal.

341. *Sulphur, Iron, Soda and Potash* are all necessary in the various tissues of the body, and deficiency of any one of them, for any considerable length of time, results in disease. They are all supplied, variously arranged and combined, in both animal and vegetable food; in some articles they exist to considerable extent, in others in much smaller quantities. *Sulphur* exists in eggs and flesh of animals, and often in water. *Iron* exists in the yolk of eggs, in flesh, and in several vegetables. *Soda* is supplied in nearly all food and largely in common salt, which is a composition of sodium and muriatic acid, the latter entering into the gastric juice. *Potash* exists in some form or other, in sufficient quantities for health, in both vegetable and animal food.

342. **Principles of Food.** Food is separated into two grand divisions, viz: *Nitrogenized* compounds, or those which contain nitrogen, and produce blood and flesh, and *Non-nitrogenized* compounds which do not contain nitrogen, and produce heat. The non-nitrogenized, or heat producing compounds, are divided into the *Saccharine* and *Oleaginous* groups: The first group is composed of starch, sugar, gum and woody fibre; the second of fatty substances, no matter from whence derived. Though they may present different appearances, they are analogous in character, all containing *Oxygen, Hydrogen* and *Carbon* in various proportions. They support combustion and produce animal heat, but do not enter into the formation of blood or flesh. Man cannot live on them alone, neither can he well live without them. The nitrogenized compounds are also divided into two groups, the *Albuminous* and the *Gelatinous*: The first group is derived from both animal and vegetable substances, the white of the egg being its type. The second group is derived only from animal bodies. It matters not from whence either are derived, they are analogous in their character, contain *Oxygen, Hydrogen, Carbon* and *Nitrogen* in various combinations, and make up the blood and tissues of the body.

343. **Variety of Food Necessary.** Scientifically conducted experiments have demonstrated that a variety of food is necessary for health. Animals, fed exclusively upon that which will produce a single proximate principle, or even upon a

single article of diet, droop and die; and in the human family, we know that the constant use of one kind of diet causes disgust, even when not very long continued. Consequently we infer, that the welfare of man demands, that his food be of sufficient variety to supply his body with all of its component parts. If this is not done the appetite is deranged, and often craves the very article which is necessary to supply the deficiency.

344. **Properties of Food.** Food may be divided into three classes; the *Carbonaceous*, or non-nitrogenized, the *Nitrogenous*, or nitrogenized, and the *Phosphatic*, which may occur combined with the others. The first variety furnishes the heat, the second the strength, and the third the brain power. A preponderance of one class of food over the others may be rendered necessary by the circumstances surrounding the individual. Mental labor requires a preponderance of the phosphatic, manual labor of the nitrogenous, while persons subjected to low temperatures require more of the carbonaceous.

345. **Climate** exerts not a little influence upon the requirements of man. In northern latitudes the inhabitants are subjected to extreme cold, and require heat producing food. For this purpose fat and sweet are eaten with avidity, and even oil is taken with a relish, while in warm climates, such substances are not necessary, nor are they generally acceptable. In our own climate, during the winter season, more carbonaceous material is taken and assimilated by the same persons than in summer; if such a diet were continued, the bad effects would be seen in the general derangement of the stomach and biliary organs, and in eruptions on the skin.

346. **Value of Animal Food.** The principal animal food of this country consists of *Pork*, *Mutton*, *Beef* and *Fish*, and Dr. Dio Lewis, who is considered good authority on the subject, gives the following classification to express their relative values for the production of heat, muscle and brain power:

For HEAT — Pork, Mutton, Beef, Fish.

For MUSCLE — Beef, Mutton, Fish, Pork.

For BRAIN — Fish, Beef, Mutton, Pork.

Thus it will readily be seen that while pork is richest in heat and fat producing material (carbon), it is of little, or no value whatever in the production of brain power. Beef and mutton

are rich in muscle producing material (nitrogen), but are inferior to pork for the production of heat. Fish is of little value as a heat producer, but outranks the others as brain nutriment, next to which we find beef and mutton. Although pork is extensively produced in some portions of this country, and enters largely into the diet of some classes, yet its use, except in winter, is not to be encouraged. The same amount of capital invested in beef would give far greater returns in muscular power. Nearly all articles of diet contain, to some extent, the non-nitrogenized compounds; the same articles that contain nitrogen, often contain sufficient fat and starch to fulfill ordinary requirements, consequently as a rule a non-nitrogenous diet is seldom necessary. Milk is rich in all materials, particularly the carbonaceous.

347. **Relative Values of Food.** The following table, which we regret could not have been more complete, shows the

COMPOSITION OF FOOD IN 100 PARTS.	Nitrogenous Flesh-forming Ingredients.	Non-Azotized Heat-giving Principles.	Mineral Matter.	Carbon.	Phosphorus.	Water.
Milk,	4.50	7.90	0.66	6.94	0.056	87.00
Butchers' meat free from bone,	22.30	14.30	0.50	21.56	-----	60.8
Bacon, Pork,	8.36	62.50	0.50	53.92	-----	55.3
Fish,	14.00	7.00	1.00	9.15	-----	80.
Flour,	17.00	66.00	0.70	45.50	-----	14.73
Barley Meal,	14.00	68.50	2.00	40.50	-----	15.00
Oat Meal,	13.60	70.30	3.30	44.10	-----	15.00
Indian Meal,	10.71	72.25	1.04	36.41	.164	18.
Peas,	23.40	60.00	2.50	35.70	-----	16.
Rice,	5.43	84.65	0.52	36.00	to .286 .088	6.00
Potatoes,	1.41	22.10	1.00	12.20	.025	75.9
Carrots,	1.48	11.61	0.81	5.40	-----	83.
Turnips,	1.64	10.00	1.62	5.20	-----	92.5
Cabbage,	1.75	4.05	2.20	2.65	-----	91.5
Sugar,	0.00	100.00	0.00	42.58	-----	5.
Suet, Fat, Butter,	0.00	100.00	0.00	79.00	-----	15.0
Cheese,	31.02	25.30	4.90	36.80	-----	40.
Wheat,	2.3	-----	1.62	46.1	.198	14.5
Oats,	12.6	-----	-----	50.7	.132	15.8
Rye,	1.7	-----	-----	46.2	to .132 .919	16.6
Barley,	2.02	-----	-----	-----	to .022 .132	13.2
Beans,	5.	-----	-----	38.24	-----	14.11
Blood,	3.014	-----	23.00	10.93	.0143	80.
Fresh meat free from fat,	3.752	-----	-----	13.6	-----	60.8
Eggs,	2.16	-----	1.4	18.18	-----	77.

relative proportions of nitrogenized or muscle producing material, non-nitrogenized or heat and fat producing material, also known as carbonaceous food, and the amount of phosphorus or brain nutriment as well as the proportion of water. There are many other articles of diet which experience has proven to be rich in certain elements, although the proportions have not as yet been determined.

Meats have already been considered with reference to their nutritive value, (see ¶ 346). In addition to those mentioned, *Wild Game* furnishes palatable, nutritious, and easily digested food. *Barn-yard Fowls*, when young, are excellent, and with the exception of geese and ducks, are easily digested. *Wild Birds* are considered much healthier than those which are domesticated. All of these contain more or less of the elements which enter into the composition of the three classes of food.

Wheat is rich in all the elements that compose the four groups (see ¶ 342) and when the flour is unbolted it is one of the best articles to supply all the elements.

Barley stands next to wheat in nutriment, but is not so palatable.

Oats are rich in all the necessary elements of nutrition. They unite the four nutritive groups (see ¶ 342) in greater proportion than any other known vegetable. They are a great favorite among the Scotch as an article of diet, and, judging from their hardy constitutions, their choice is well founded. They supply the horse with animal heat as well as great muscular power. In consequence of the large proportion of phosphorus contained, they are capable of furnishing a vast amount of brain power.

Rye is nutritive, and as a heat producer is equal to wheat, but it is not so rich in muscle forming material.

Indian Corn is an article well known and extensively used throughout the United States and is a truly valuable one, capable of being prepared in a great variety of ways for food. It contains more of the carbonaceous material than wheat, and less of the nitrogenous and phosphatic, though enough of both to be extremely valuable. The proportion of phosphatic elements, however, is less than that of the nitrogenous.

Buckwheat, like the potato, is poor in such nutritious qualities as fat, sugar and starch, but tolerably well supplied with salts.

Rice is rather meager in nutriment; it contains but little phosphatic matter, with less carbonaceous than the others, and is best and most generally employed as a diet in tropical countries; it is, however, eaten with meats or milk to supply the necessary muscular tissue, which it does but feebly.

Beans and Peas are rich in muscle forming matter, and furnish the manual laborer with a cheap and nutritious diet; the brain worker, however, would starve on them.

Potato is over three-fourths water, and is poor in all the elements of nutrition, but it is a very palatable article of diet, and is largely used; it is excellent to furnish bulk, but both the mental and manual laborer would break down if confined exclusively to this food.

Turnip and Cabbage are 92.5 per cent. water and consequently poor in nutrition, though they are very palatable. The solid portions of cabbage, however, are rich in albumen.

348. **Quantity of Food Necessary.** While we have advised against eating too much, it may be well to advise the use of enough; the occupation will influence, to a great extent, the amount required; the manual laborer will need more than one who leads a sedentary, studious life. It seems to be instinctively demanded that the individual have enough with which to "fill up;" when animals are fed on substances rich in nutrition, they seek something else upon which to complete the filling up process. When a scarcity of food exists among the Indians, they mix it with woody fibres of roots to give the stomach the proper degree of distention, even though they contain no nourishment whatever. An Indian being asked why he did this, replied, "me don't know, must have the belly full."

349. **Digestibility of Food.** Unless an article of diet can be digested it is of no value, no matter how rich it may be in nutriment. The quantity of food taken, will influence to a considerable extent, the time consumed in its digestion. The stomachs of all are not alike in this respect, and the subject of time has been a difficult one to determine. The experiments of Dr. Beaumont with the Canadian St. Martin who discharged the contents of a loaded gun into his stomach, creating an external opening through which the process of digestion could be observed, have furnished us with the following table, which is

near enough correct to show relatively, if not absolutely, the time required for the digestion of various articles:

Articles.	Preparat'ns	Time	Articles.	Preparat'ns	Time
		<small>h. m.</small>			<small>h. m.</small>
Rice,	Boiled,	1 —	Pork, recently salted	Raw,	3 —
Pigs' feet, soured, ..	"	1 —	Soup, chicken,	Boiled,	3 —
Tripe, soured,	"	1 —	Oysters, fresh,	Roasted,	3 15
Trout, salmon, fresh	"	1 30	Pork, recently salted	Boiled,	3 15
"	Fried,	1 30	Pork steak,	"	3 15
Apples, sweet, mel'w	Raw,	1 30	Corn bread,	Baked,	3 15
Venison, steak,	Boiled,	1 35	Mutton, fresh,	Roasted,	3 15
Sago,	Boiled,	1 45	Carrot, orange,	Boiled,	3 15
Apples, sour, mellow,	Raw,	2 —	Sausage, fresh,	Boiled,	3 20
Cabbage, with vin'gr	"	2 —	Beef, fresh, lean, dry	Roasted,	3 30
Codfish, cured, dry, ..	Boiled,	2 —	Bread, wheat, fresh, ..	Baked,	3 30
Eggs, fresh,	Raw,	2 —	Butter,	Melted,	3 30
Liver, beef's fresh, ..	Boiled,	2 —	Cheese, old, strong, ..	Raw,	3 30
Milk,	Boiled,	2 —	Eggs, fresh,	Hard b'd	3 30
Tapioca,	"	2 —	"	Fried,	3 30
Milk,	Raw,	2 15	Flounder, fresh,	"	3 30
Turkey, wild,	Roasted,	2 18	Oysters, fresh,	Stewed,	3 30
"	Boiled,	2 25	Potatoes, Irish,	Boiled,	3 30
" domesticated	Roasted,	2 30	Soup, mutton,	"	3 30
Potatoes, Irish,	Baked,	2 30	" oyster,	"	3 30
Parsnips,	Boiled,	2 30	Turnip, flat,	"	3 30
Pig, suckling,	Roasted,	2 30	Beets,	"	3 45
Meat hashed with {	Warmed,	2 30	Corn, green, & beans	"	3 45
vegetables, }			Beef, fresh, lean,	Fried,	4 —
Lamb, fresh,	Boiled,	2 30	Fowls, domestic,	Boiled,	4 —
Goose,	Roasted,	2 30	"	Roasted,	4 —
Cake, sponge,	Baked,	2 30	Veal, fresh,	Boiled,	4 —
Cabbage-head,	Raw,	2 30	Soup, beef, vegeta- }	Boiled,	4 —
Beans, pod. }	Boiled,	2 30	bles, and bread, {		
Custard,	Baked,	2 45	Salmon, salted,	Boiled,	4 —
Chicken, full-grown	Fricas'd	2 45	Heart, animal,	Fried,	4 —
Apples, sour, hard, ..	Raw,	2 50	Beef, old, hard, salted	Boiled,	4 15
Oysters, fresh,	"	2 55	Pork, recently salted	Fried,	4 15
Bass, striped, fresh, ..	Boiled,	3 —	Cabbage, with vin'gr	Boiled,	4 30
Beef, fresh, lean, rare	Roasted,	3 —	Ducks, wild,	Roasted,	4 30
" steak,	Boiled,	3 —	Pork, recently salted	Boiled,	4 30
Corn cake,	Baked,	3 —	Suet, mutton,	"	4 30
Dumpling, apple,	Boiled,	3 —	Veal, fresh,	Fried,	4 30
Eggs, fresh,	BT'd, soft,	3 —	Pork, fat and lean, ..	Roasted,	5 15
Mutton, fresh,	Boiled,	3 —	Suet, beef, fresh,	Boiled,	5 30
"	Boiled,	3 —	Tendon,	"	5 30

350. **Cookery.** "Cookery," says Mrs. Owen, "Is the art of turning every morsel to the best use; it is the exercise of skill, thought and ingenuity to make every particle of food yield the utmost nourishment and pleasure, of which it is capable." We are indebted to this practical woman for many valuable suggestions in this art; and some of our recommendations are drawn from her experience.

351. **Soups.** The nutritious properties, tone and sweetness, of soup depend, first, upon the freshness of the meat; second, the manner in which it is boiled; third, soups must be nicely and delicately seasoned, according to the taste of the consumer, by using parsley, sage, savory, thyme, sweet majoram, sweet basil, or any of the vegetable condiments. These may be raised in the garden, or obtained at the drug-stores, sifted and prepared for use. In extracting the juices of meats, in order that soups may be most nutritious, it is important that the meat be put into *cold* water, or that not so hot as to coagulate the albumen (which would prevent its being extracted), and then, by slow heat and a *simmering* process, the most nutritious properties will be brought out.

352. **Beef Soup** may be made of any bone of the beef, by putting it in cold water, adding a little salt, and skimming it well just before it boils. If a vegetable flavor be desired, celery, carrots, onions, turnips, cabbage, or potatoes, can be added, enough of each to suit the taste.

353. **Mutton Soup** may be made from the fore quarter, in the same manner as above given, thickening with pearl-barley or rice, and flavoring to suit the taste.

354. **Boiled Fish.** Clean the fish nicely, then sprinkle flour on a cloth and wrap around it; salt the water, and when it boils, put in the fish; let it boil half an hour, then carefully remove it to a platter, adding egg sauce and parsley. For *baking fish*, prepare by cleaning, scaling, etc., and let them remain in salt water for a short time. Make a stuffing of the crumbs of light bread, and add to it a little salt, pepper, butter, and sweet herbs, and stir with a spoon. Then fill your fish with the stuffing and sew it up. Put on butter, salt, pepper, and flour, having enough water in the dish to keep it from burning, and baste often. A four pound fish will bake in fifty or sixty minutes.

355. **Broiled Steaks.** Sirloin and porter-house steaks should be broiled quickly. Preserve them on ice for a day or two and they are much tenderer. Never broil them, until the meal is ready to be served.

356. **Boiled Meat.** When meat is to be boiled for *eating*, put it into boiling water, by which its juices are coagulated and its richness preserved. The slower it boils, the

tenderer, plumper and whiter it will be. Meat or poultry should be removed immediately after they are done, or they will lose their flavor and become soggy.

357. **Pork Steaks.** The best steaks are cut off the shoulder—ham steaks being rather too dry. They should be well fried, in order to destroy the little living parasites called *Trichinæ* which so often infest this kind of meat. They are introduced into the stomach by eating ham, pork, or sausages made from the flesh of hogs infested by this animal. Thorough cooking destroys them, and those who will persist in the use of swine's flesh, can afford to have it *done brown*.

358. **Baked Mutton.** To bake mutton well, we should have a brisk, sharp fire and keep the meat well basted. It requires two hours to bake a mutton leg, weighing eight pounds.

359. **Bread.** The enjoyment and health of a family depend, to a certain extent, on good, well baked bread. At all events, our enjoyment would be greater if it was only better prepared. We obtain the following extract from an article printed by the State Board of Health, concerning the food of the people of Massachusetts: "As an example of good bread we would mention that which is always to be had at the restaurant of Parker's Hotel, in Boston. It is not better than is found on the continent of Europe, on all the great lines of travel, and in common use by millions of people in Germany and France; but with us, it is a rare example of what bread may be. It is made from a mixture of flour such as is generally sold in our markets, water, salt, and yeast—nothing else. The yeast is made from malt, potatoes and hops. *The dough is kneaded from one and a half to two hours, and is then thoroughly baked.*" The truth seems contained in this nutshell, that the kneading, which in this country takes the housewife's time and muscle, in Europe is done by the help of machinery. So here, in large villages and cities, people may furnish themselves with good bread, by means of co-operative associations, even at a less cost than at present.

BEVERAGES.

360. **Water.** The importance of water in the economy of nature is obvious to all. It is the most abundant substance of

which we have knowledge. It composes four-fifths the weight of the vegetable kingdom and three-fourths that of the animal. It is essential to the continuance of organic life. Water is universally present in all of the tissues and fluids of the body. It is not only abundant in the blood and secretions, but it is also an ingredient of the solids of the body. According to the most accurate computations water is found to constitute from two-thirds to three-fourths the entire weight of the human body. The following table compiled by Robin Verdeil shows the proportion of water per thousand parts in different solids and fluids:

QUANTITY OF WATER IN 1,000 PARTS.

Teeth,	100	Bile,	880
Bones,	130	Milk,	887
Cartilage,	550	Pancreatic juice,	900
Muscles,	750	Urine,	936
Ligaments,	768	Lymph,	960
Brain,	789	Gastric juice,	975
Blood,	795	Perspiration,	986
Synovial fluid,	805	Saliva,	995

361. **The Natural Drink of Man.** Water constitutes the natural drink of man. No other liquid can supply its place. It has been ascertained, by measuring the quantity of fluid taken with the drink, with the proportion existing in solid food, that for a healthy adult man the ordinary quantity of water consumed is a little more than four and one-half pounds per day. Its presence, however, in the body is not permanent. It is discharged from the body through four different agencies: (1.) The Urine; (2.) Feces; (3.) Breath; (4.) Perspiration. The first two are in a liquid, the remaining in a gaseous form. It is estimated that about forty-eight per cent. is discharged in the liquid and fifty-two per cent. in the gaseous form. Although the absolute as well as the relative amount discharged depends upon a variety of circumstances.

362. Water is never found perfectly pure, since it holds in solution more or less of almost every substance with which it comes in contact. Rain falling in the country remote from habitations is the purest water that nature furnishes, for it is then only charged with the natural gases of the atmosphere. In

cities it absorbs organic and gaseous impurities, as it falls through the air, and flowing over roofs of houses carries with it soot, dust, etc. Water from melted snow is purer than rain-water since it descends in a solid form, and is therefore incapable of absorbing gases. Rain-water is not adapted to drinking purposes, unless well filtered. All water except that which has been distilled, contains air, and it is due to this fact, that aquatic animals can live in it; for example, put a fish in distilled water and it will soon die.

363. **Mineral Impurities.** Rain-water which has filtered through the soil and strata of the earth, dissolves the soluble materials, and carries them down to lower levels until they finally collect in the sea. Common well, spring and mineral waters contain from 5 to 60 grs. to the gallon; sea water 2,600 grs.; while in some parts of the Dead Sea there are 20,000 grs. to the gallon. The principal mineral impurities of well and spring water are lime, magnesia, soda and oxide of iron, combined with carbonic and sulphuric acids, forming carbonates, sulphates and common salt. The most general, however, are carbonate and sulphate of lime.

Mineral waters are usually from springs which contain a considerable amount of saline matter. Those waters which abound in salts of iron are called *chalybeate* or *ferruginous*. Those containing salt are termed *saline*. Those in which the active ingredient is sulphur are termed *sulphurous*. Water derives its quality of "*hardness*" from the salts of lime—chiefly the sulphates—which it contains. "Hard water," being an imperfect solvent, is unsuitable for washing purposes.

364. The purity of drinking water is a matter of much importance. That which contains a minute quantity of lead will give rise to all the symptoms of lead poisoning, if the use of it be sufficiently prolonged. An account is given, in a Dublin quarterly journal of Medical Science, of the ex-royal family of France, many of whom suffered from this cause at Claremont. The amount of lead was only one grain per gallon. Care should therefore be taken to avoid drinking the water which has stood in leaden pipes. It should always be allowed to run a few minutes before using.

365. An excess of saline ingredients—which in small quantities

are harmless—frequently produces marked disorders of the digestive organs. A small amount of putrescent matter habitually introduced into the system, as in the use of food—is productive of the most serious results which can be traced to the direct action of the poison introduced. A case is recorded of a certain locality favorably situated with regard to the access of pure air, where an epidemic of fever broke out much to the astonishment of the inhabitants. Upon observation it was found that the attacks of fever were limited to those families who used the water of a neighboring well. The disagreeable taste of the water which had been observed, was subsequently traced to the bursting of a sewer, which had discharged a part of its contents into the well. When the cause was removed, there was no tendency to a recurrence of the effect.

366. **Organic Impurities.** Water is liable to organic contamination from a multitude of causes, viz: drainages of dwellings, dust, insects, the decay of leaves, animals, etc. These impurities may be mechanically suspended or held in solution in the water. Although organic impurities, which are mechanically suspended in water, are poisonous, yet they are generally attended with animalculæ, and these feed upon, and finally consume them. Good water never contains animalculæ. They are never found in freshly fallen rain-water, remote from dwellings, but abound, to a greater or less extent, in cisterns, marshes, ponds and rivers. These little workers subserve a useful end, since they consume the dead organic matter from the water, and having fulfilled their mission, sink to the bottom and die, leaving the water pure. Water which contains dissolved organic matter is exceedingly dangerous to health, and its use should be carefully avoided.

367. In low lands where the current of streams is sluggish, and shallow pools abound, the water is apt to be more or less infected with decaying vegetable substances. Many people living in such localities, and wishing to obtain water with as little trouble as possible, dig a hole in the ground, of a few feet in depth, and allow the stagnant surface water to accumulate. This water is used for drinking and cooking. The result is that ague prevails in that locality.

Care should be taken that wells, from which the water is used

for household purposes, be removed from barn-yards, privies, sinks, vaults, etc.

368. **Purification of Water.** There are various methods of purifying water. It may be accomplished: (1.) By distillation, which is the most perfect method; (2.) By filtration through sand, crushed charcoal and other porous substances, it may be deprived of suspended impurities and living organisms; (3.) By boiling, which destroys the vitality of all animals and vegetables, drives out the gases and precipitates carbonate of lime, which composes the crust frequently seen upon the inside of tea-kettles or boilers; (4.) By the use of chemical agents, which may be employed to destroy or precipitate the offending substances. Alum is often used to cleanse roily water. Two or three grains in solution, being sufficient for a quart. It causes the impurities to settle to the bottom, so that the clear water can be poured or dipped off for use. One or two grains of the permanganate of potash will render wholesome a gallon of water containing animal impurities. Alkali, potash, etc., "soften" water by precipitating earthy salts. Water containing $1\frac{1}{2}$ grs. of lime to the gallon is not suitable for laundry purposes.

369. **How to use Water.** Very little if any water should be taken at meal time, since the salivary glands furnish an abundance of watery fluid to assist in mastication. When these glands are aided with water to "wash down" the food, their functions become feeble and impaired. The gastric juice is diluted and digestion is weakened. Large draughts of cold water ought never to be indulged in, since they cause dérangement of the stomach. When the body is overheated, much water is injurious. It should only be taken in small quantities. Thirst may be partially allayed—and without injury—by holding cold water in the mouth for a short time and then spitting it out, taking care to swallow but very little. Travelers frequently experience inconvenience from change of water. If the means are at hand, let them purify their drinking water, if not, they should drink as little as possible. Persons who visit the banks of the Ohio, Missouri or Mississippi rivers and similar localities, almost invariably suffer from some form of stomachic or intestinal disease. Water standing in close rooms soon becomes unfit to

drink and should not be used. A drink of cold water taken on retiring, and another on rising are conducive to health. "Drink water," said the celebrated Dubois to the young persons who consulted him, "*drink water, I tell you!*" Du Moulin, the medical Dubois of his time, wrote, previous to his death, "*I leave two great physicians behind me—diet and water.*"

370. **Tea and Coffee.** These agents are almost universally used as beverages, and when properly employed fulfill a four-fold purpose: (1.) They quench thirst; (2.) Excite an agreeable exhilaration; (3.) Repress the waste of the system; and (4.) Supply nourishment. In consequence of being generally used at meal times, their stimulant properties are employed to promote digestion, and consequently they are not so objectionable as they might otherwise be. The liquids introduced into the stomach at meal times should not be cold. Tea and coffee are drank warm, while water, except in a few instances, is always drank cold, the effects of which have already been shown, (see ¶ 369). That their inordinate use may be injurious no one will deny, but this is equally true of other beverages, even simple cold water. Scientific investigators inform us, that these agents as beverages, judiciously employed, are not injurious. It has been urged that they are poisonous, but if they are, they are very slow in their operation.

When properly prepared, they are very agreeable beverages, and as man will drink more or less at meals, they are allowable; for if their use was excluded, some other beverage would be sought after, and quite likely one of an alcoholic character accepted; so of two evils, if this be an evil, let us choose the least. Unlike alcoholic stimulants, they exhilarate and gladden, without a depressing reaction after their influence has passed off. They "cheer, but do not inebriate." But one cup should be drank at a meal, and it should be of moderate strength. The use of large quantities of strong tea or coffee stimulates the brain to wakefulness, and produces irritability of the nervous system. When they are productive of such effects, they are injurious, and should be considerably moderated or wholly discontinued. No criterion can be given by which the amount the system will tolerate can be regulated. What one will take with impunity, will be deleterious to another. Individuals differ

greatly in this respect. There are some who cannot tolerate them at all, either because of some peculiarity of constitution, or the existence of disease. And sometimes when tea is agreeable and beneficial, coffee will disagree—and *vice versa*. Persons of nervous habits, either natural or acquired, will be apt to find their wakefulness and irritability increased by the use of tea, particularly if strong, while coffee will prove a “balm in Gilead.” On the other hand, persons of a lymphatic or bilious disposition, will often find coffee to disagree with them, aggravating their troubles and causing “biliousness,” constipation and headache, while tea will prove agreeable and beneficial. Whenever they disagree with the system the best rule is to abandon their use. We find many persons who do not use either, and enjoy health, a fact which proves that they are not by any means indispensable, and no doubt, were it customary to go without them, their absence would be but slightly missed.

371. They are adulterated to a very great extent, and persons using them will be frequently imposed upon. This is an evil we cannot remedy. If people make use of them, their experience in selecting them must be their guide; however, it is believed, that the Black or Japan varieties of tea are the least apt to be adulterated, and coffee, to insure purity, must be purchased in the berry, and ground by the purchaser.

372. To prepare tea an infusion should be made by adding boiling water to the leaves, and permitting it to steep for a few minutes only, as a concentrated decoction, made by boiling for a long time, liberates the astringent and bitter principles and drives off the agreeable aroma which resides in a volatile oil.

Coffee should be prepared by adding cold water to the ground berry, and raising it slowly to the boiling point. Long continued boiling liberates the astringent and bitter principles upon which its stimulant effects to a great extent depend, and drives off with the steam the aromatic oil from which the agreeable taste is derived.

373. **Malted Beverages.** Under this head are included all those beverages into the composition of which malt enters; as, Ale, Beer, Porter, Lager, etc.

Properties.—They possess, according to Pereira, three properties: (1.) They quench thirst; (2.) They stimulate, cheer,

and if taken in sufficient quantity, intoxicate; and, (3.) Nourish or strengthen. The first of these qualities is due to the water entering into their composition; the second, to the alcohol; the third, must be attributed to the nutritive principles of the barley from which the malt is prepared. The elements of nutrition, however, entering into their composition, are very limited, and we fully believe that the same amount of capital, invested in nourishment of a different character, would yield far greater results. A mere stimulation of the nervous system, is apt to be mistaken for a genuine increase of strength, such as only good wholesome food produces. Hence, we see how very liable we are to overestimate the virtue of these beverages, as sources of nutrition. According to Liebig, "good beer imparts a sense of warmth and stimulation not obtained from bread and meat." A tea-spoonful of alcohol in a tumbler of water would produce the same result. It would yield more warmth and stimulation than bread and meat, and yet no one would think that it would build up the system, and repair its waste, like those substantial articles of food. In fact, it would contain no nutrition whatever.

374. **Objections to their use as Beverages.**

We notice, first, that these articles are either pure or adulterated. In their pure state the objection to their use for this purpose lies in the fact that they contain alcohol. This is a poisonous substance, which the human system in a state of health does not need. Its use, when the body is in a normal condition, is uncalled for, and can only be deleterious. In such a case it enters into the system as a disturbing force. Exciting the machinery of life to more rapid action, it causes a breakdown at an earlier period than if the use of it be altogether dispensed with. Scientific experiments prove that alcohol never assimilates with the system. It never becomes transformed into nerve, bone, or muscle, as is the case with ordinary food. Owing to its penetrating character it permeates the entire body, but wherever found, in the brain, the blood, or other fluids of the system, it is alcohol still. When expelled from the body, whether through the pores of the skin or the excretory canals, it is yet alcohol—nothing more nor less. Beverages containing this poison are more or less deleterious to healthy persons, according to the amount of it that enters into a given quantity.

We observe, in the second place, that these liquors are extensively adulterated, and this increases their injurious effects. The ingenuity of man has been taxed to increase their intoxicating properties, and still retain their names. To effect this, narcotic and stimulating drugs have been employed. Those used for this purpose are the *Coculus Indicus*, Poppy, Opium, St. Ignatius Bean, Henbane, etc. The pungent taste is augmented by using Grains of Paradise or Cayenne Pepper. The bitter which is supposed to be derived from hops is often supplied by Aloes, Quasia, Gentian, Wormwood, etc. Soap-suds make a very good menstruum in which to mix them. As age imparts a desirable quality, a two year old barrel of beer is often made in a few minutes by adding a little sulphuric acid. Would it not contribute very much toward the abandonment of these articles as beverages, if those who use them as such, would but stop a moment and consider the impositions practiced upon them? The use of such stimulants unduly excite the brain, and are followed by exhaustion, which, in its turn, pleads for a repetition of the stimulant.

This leads us to speak of our third and last objection to the use of these compounds as beverages. Their manifest tendency is to create an appetite for stronger stimulants, and thus lay the foundation for inebriation. The disposition of man is to go to extremes, and he continually seeks for authority to sanction his acts. Knowing this, we can but take our present position on this subject. We decline to lend our sanction to any practice that is liable to make men drunkards.

375. **Fermented Beverages.** These are Cider, Wine, etc. It is true that beer, and all drinks of its class, are fermented; but they are prepared from malt, while cider and wine are not. We therefore class them as fermented beverages, to distinguish them from the foregoing. They contain a larger percentage of alcohol than malt liquors. This is especially true of wine. Cider will usually be found to contain about one per cent. more alcohol than lager beer. Wine, owing to the greater amount of sugar contained in it before fermentation, contains a much larger per cent. of alcohol after this process is completed. As beverages, these are open to the same objections as those manufactured from malt. As a medicine, wine is a

useful remedy. Concerning its use in this capacity, Prof. Liebig says: "Wine is a restorative. As a means of refreshment when the powers of life are exhausted—as a means of compensation where a misappropriation occurs in nutrition, and as a means of protection against transient organic disturbances, it is surpassed by no product of nature or art." That an article is useful in medicine, however, is no reason why it should be used as a beverage by those in health. It is rather an argument against such a practice. For it is generally true that the drugs used to restore the ailing system to health, are pernicious or poisonous to it when in a normal condition.

376. **Distilled Liquors.** These are Whisky, Brandy, and kindred productions of the still. Of their habitual use we can do no better than to quote Liebig again. He says: "He who drinks them draws a bill, so to speak, on his health. This bill must always be renewed, because he cannot, for want of means, take it up. He consumes his capital instead of his interest, and the result is bankruptcy of his body."

THE CLOTHING.

377. There is no physical agent which exerts a more constant or powerful influence upon health and life, than the atmosphere. The climate in these latitudes is exceedingly variable, ranging all the way from 90° F. in summer to 20° below zero in the winter season. Every individual requires that his body be so protected from cold, that it can maintain a mean temperature of 97° F. This presupposes that it possesses some heat-generating process within, to assist in keeping it evenly warmed.

378. It is a fact also, that when the body is warm there is a free and equal circulation of the blood throughout all the structures. When the surface is subjected to cold, the myriad of capillaries and minute vessels, carrying the blood, contract and diminish in their size, throwing this fluid upon the internal organs, thus causing congestion. The blood must go somewhere, and if driven from the surface, retreats to the cavities within. Hence, this repletion of the vital organs causes pain from pressure and fullness of the distended blood-vessels, and the organic functions are embarrassed. Besides, cold upon the surface shuts up the pores of the skin, which are the most active and important

emunctories of the system. It is evident, then, that we require suitable clothing, not only for comfort, but to maintain the temperature and functions essential to health and life.

379. Now, what are the best materials for clothing the body? The chief object to be attained by dress is the maintenance of a uniform temperature of the body. To attain this end, it is necessary that the exhalations of the system, which are continually escaping through the pores of the skin, should be absorbed or conducted away from the person. These exudations occur in the form of sensible or insensible perspiration, and the clothing, to be healthy, should be so porous as to allow them freely to escape into the air.

A substance should also be chosen which is known to be a poor conductor of heat. That generated by the system will thus be retained where it is needed, instead of being dispersed into the atmosphere.

We might add that the better the material for accomplishing these purposes, the less will be needed to be worn; for we do not wish to wear or carry about with us any more material than is necessary. It so happens that all of these qualities are found combined in one material, viz : *flannel*. The value of this article worn next to the skin cannot be overrated, for while it affords protection from cold during the winter months, it is equally beneficial during the heat of summer, because it imbibes the perspiration, and being very porous allows it to escape. The skin always feels soft, smooth, and pliable, when it is worn ; but when cotton takes its place, it soon becomes dry and harsh. Its natural adaptability to these purposes, shows that it is equally a comfort and a source of health. Where the skin is very delicate, flannel sometimes causes irritation. In such cases a thin fabric of linen, cotton, or silk, should be worn next the skin, with flannel immediately over it. Where there is a uniform and extreme degree of heat, cotton and linen are very conducive to comfort. But they are unsuitable in a climate or season liable to sudden fluctuations in temperature.

The value of furs, where people are exposed to extreme cold, cannot be overestimated. They are much warmer than wool, and are chiefly used as wraps on going outdoors. They are too cumbrous and expensive for ordinary wear in this latitude, but

in places nearer the poles they constitute the chief clothing of the inhabitants.

380. The quantity of clothing worn is another important item. The least that is necessary to keep the body well protected and evenly tempered when employed is the rule of health. Some people, instead of wearing flannels next to the body, put on other material in greater abundance, thus confining the perspiration to the skin and making the body chilly. The amount of clothing is then increased, until they are so thoroughly bundled that they cannot exercise. We knew of one lady who was literally wound in thirty thicknesses of common cotton cloth, and she was not warm either! Far better to wear one thickness of flannel next to the skin, and then cotton, or woolen for outside garments, and be able to exercise, thus allowing the blood to circulate and to assist in the warming process.

381. One great fault in dress consists in neglecting to properly clothe the upper and lower extremities. Some people do not reflect upon the necessity, while others are too proud to be directed by plain common sense. In the winter season, the feet should be covered with woolen stockings. The next matter of importance, is to get a thick, broad-soled shoe, so large that it will not prevent the free circulation of the blood. Then for walking, and especially for riding, when the earth is wet and cold, or when there is snow on the ground, wear a flannel-lined rubber, or Arctic over-shoe. *Be sure and keep the feet comfortable and warm at all times.*

382. Our next advice is, keep the legs warm. Somehow, legs are more fashionable than popular, and hence, though they are indispensable agents, we hardly ever allude to them. They are deserving the best of care, and should be kept warm and comfortable. We were called, not long ago, to see a young lady who had contracted a severe cold. She had been to a party where the apartments were nicely warmed, and had greatly enjoyed the social occasion, and from thence had walked home late in the evening. Of course, we inquired, as well as we knew how, into the circumstances of the case, and ascertained that she wore flannel about her chest, and that she also wore rubbers over her shoes. But the other portions of the lower extremities were protected only by cotton coverings! In short,

her legs were not kept warm, and she took cold by coming out from those nice, warm rooms into a raw, chilly atmosphere. A good pair of woolen leggins might have saved her many pains.

383. What are the results of insufficient protection of the lower extremities, if not colds, coughs, consumption, headaches, pain in the side, menstrual derangements, uterine congestions and disorders, chronic sickness, doctor's bills, besides being disabled for the ordinary and necessary duties of life? All this may be prevented by hygienic attention to clothing the legs suitably, and wearing comfortable flannel. It is the dictate of prudence and common sense to keep warm and healthy, and personal neglect shows a lack of both commodities.

384. Young people can bear a low temperature of the body better than old people, simply because they possess greater power of endurance. But that is no reason for running into peril, and laying aside good sense.

385. The amount of clothing ought to be graduated according to the heat-generating power of the individual, and also according to his susceptibility to cold. No two persons are alike in these respects. But it is never suitable for young persons to reject the counsels of experience, or treat lightly the advice to protect themselves thoroughly against the cold. Many a parent's heart has ached as he has followed the earthly remains of a darling child to the grave, knowing that if good advice had been heeded, in all human probability, the life might have been lengthened, and filled with usefulness.

386. Young misses, who imprudently bare their arms, wear low dresses and expose the neck and chest to cold, are the same butterflies of fashion after marriage. How do they treat the darling baby? The same vanity is aroused, and they must make a constant exhibition of baby graces, expose its plump, white, fat chest, arms and legs, dress it in the latest, half-clad style, to excite the envy of other mothers. Suddenly the mercury drops, the temperature falls and baby is forgotten almost, until its cries of pain call the mother's attention, and its continual writhings show that inflammation is already fastening upon it. The doctor is sent for, but his skill is a very poor substitute for that care and attention—born of good common sense—which might have averted all this illness.

387. When it becomes *fashionable* to be healthy, *then* we will follow the style. But so long as dress-makers display such vulgarity in padding the chest and making artificial bosoms, and compressing the waists of girls until they are caricatures of feminine grace, monstrosities in the flower garden of humanity, it is the duty of sensible mothers to protest. Where is there any room for stomach, liver, bowels, or any such vulgar things, when dresses are *nicely*, snugly fitted to delicate and yielding waists? Yet Fashion continues to pinch the body, and the result is congestion, displacement and prolapse of these organs. The tastes of our fashionable *modistes* need to be cultivated by a due regard for Hygiene and Physiology, and then they may follow the rules of art in dress, and direct public sentiment in healthy channels, and be not only ornamental but highly useful members of society. At present they are only beneficial to society, as it would appear, in killing off silly women who disregard the conditions of health and usefulness. Under the present dispensation of Fashion, the doctrine of "the survival of the fittest," is fully exemplified.

388. Clothing ought never to be worn snugly, especially by children and girls, whose bones are soft and yielding, nor should its weight be suspended from the hips, but rather from the shoulders. The diminution of the waist, the compression of the ribs, the displacement of the vital organs prohibiting the natural expansion of the lungs, are all alike destructive to beauty and health. The æsthetic ideas of the Greeks were not thus perverted, for wherever we find an image of the Grecian form, it is true to nature, and therefore a model of beauty. The Venus de Medici has for ages been the admiration of the world, since it is a representation of the *true* female form. Not less perfect are the outlines of the Greek Slave, (see Fig. 100). It is a false notion that symmetry resides in a wasp-like waist. Beauty and health are inseparable, the former being a symbol of the latter. There is nothing more noble, majestic, or exquisitely æsthetic, than the perfectly developed human form. A full development of the chest and lungs is necessary to the inspiration of an adequate quantity of pure air, which is essential to mental and physical vivacity. Contracted chests—small lungs—tend to make feeble, dispirited women, without vigor and resolution, and

subject to pulmonary disease. On the other hand, we associate strength, resolution, physical hardihood, and all the warm, generous impulses, with persons possessing natural waists, for such suggest cheerfulness, goodness, capability, as well as womanly grace and dignity.

CHAPTER III.

PSEUDO-HYGIENE.

389. There are quacks in Hygiene as well as in Medicine, and hence, Hygiene itself is pre-judged by its bad associations. As when, in any neighborhood or society, some person is charged with being the chief sinner, and made the scape-goat for the rest, so, in the human system, doctors hunt for the chief offender and load him with the guilt of all. Allopathic physicians seem to consider the liver as the great sinner; Hydropathists think the skin is the principal criminal; Botanic doctors find the vascular system the delinquent; while Pseudo-Hygienists regard the stomach as the villain. Impute a bad character to a good man, and it is exceedingly demoralizing. No matter how faultless one is, slander always tarnishes his reputation. And so, modern Pseudo-Hygienists treat the stomach as though it were a villain, and the stomach responds like a reprobate. Believing and acting upon the assumption that the stomach is bad, deranges its functions, which, in turn, perverts the judgment. Modern Hygienists cry out, "There are two millions of dyspeptic stomachs in America," and five millions of stomachs respond with newly begotten illusory sensations.

390. "Two meals a day," is the cure-all, because they claim that three meals are decidedly injurious to health. It is quite fashionable, in certain quarters, to recommend the accused dyspeptic to eat all that he requires for twenty-four hours at two meals, assigning as the reason, that it gives more time for the stomach to rest, after the wearying efforts of digestion. Is this a good reason, or only a fallacy? What does common observation disclose concerning those who follow this advice? Sojourn

for one week in any institution practicing the two meal system, and witness the consequences. If "chewing the string is testing the pudding," then the evidence is conclusive that the attempt to carry out this theory, is miserable gluttony and worse dyspepsia!

391. They violate the rules of health by taking too large quantities of food. It is astonishing how hungry people become after twelve hours abstinence, and what amazing quantities they will devour, under the specious idea that they are practicing pure Hygiene! They eat as though they were inspired with this injunction, "*Eat enough at two meals to last all day.*" Indeed, some argue in favor of quantity, as though bulk was a salubrious item in the reform. If it is only *vegetable* food, that is the main point, irrespective of the amount consumed.

392. They would not be flesh-eaters; no, indeed! meat is too stimulating, even vulgar,—tending to excite the animal nature. Two meals in which they gorge their stomachs with coarse bread, potatoes, baked apples, boiled rice, cracked wheat and syrup, concluding with a few raw apples for dessert, constitute their daily routine of gormandizing. We would not wish to be understood as condemning the articles that make up the limited bill of fare of these fanatics, for, so far as they go, they are generally very good; but what we object to is, the absurd practice of excluding other edibles, equally valuable, by which the system is denied many of the elements necessary for its healthful nourishment. We also protest against the irrational practice of abstaining from food until ravenous hunger can be satisfied only by indulging the appetite to excess. Is it any wonder that such Hygienists are dyspeptic gluttons? Do not their very teachings and perverted ideas of Hygiene, lead them in the way of becoming the worst gormandizers that disgrace civilization? Their everlasting threadbare theme is, bad cookery and the poisonous qualities of detestable butter and lard. They vent their spleen against every thing "*short.*" It is even considered polite in them to ask, "Is salt in this?" or, "Butter in that?" "Is shortening in this?" or "seasoning" in the other article before them. If they do not ask, "How is this preparation made?" they will ask if it is "injurious to health." Then they condescend to give a careful and interesting (ugh!) detail of what agrees with their stomach, and what does not; and

should you happen to be indiscreet enough to express a differing opinion, you will experience the pleasure of a well planned and masterly executed attack, backed by a terrible array of whims, conceits and prejudices. Meantime they will inspect some plain article of food, turn it over suspiciously, and finally smell of and taste it, perplexed whether to eat it or let it alone. Evidently there is a fearful struggle going on between perverted ideas, a morbid appetite and good breeding! "They are sick, that surfeit with *too much*, as they that starve *at nothing*," and so they fluctuate between extremes. They seem to think that gastric topics are always in good taste. They abjure butter, pastry, coffee, tea, meats, and superfine flour, but just set before them mush, apple sauce, milk and Graham crackers, and all scruples suddenly scatter, while the food as quickly disappears. Don't ask us what becomes of these rations. Byron says, "Besides, they always smell of bread and butter," but we think if he had been entertained by these modern Hygienists, he would have said, "*of mush and apple sauce.*"

393. The distinguishing trait of this class of Hygienists is, that they will persist in overloading the stomach. No poor donkey bears a heavier load than this overburdened organ. It is fearfully gorged until its muscular fibres are weakened by the extreme distention, and thus disqualified to churn the food. Show them this fact, and it is all Greek to them. Reason with them that it is far preferable to eat three spare meals a day, of such food as easily and quickly digests without causing pain or languor, and they don't comprehend. They remind us of the couplet :

"The fool of Nature stood with stupid eyes,
And gaping mouth, that testified surprise."

We have wondered if, when Dryden wrote those lines, he had not discovered some of the progenitors of this particular class. Some of these modern, self-dubbed Hygienic Professors, seem to act as though gormandizing was a virtue, if only restricted to the use of coarse food and vegetables. They are an unhappy race of grumblers and fault-finders. Who ever knew of one who was satisfied, even when surfeited! They grunt, belch, and complain, a burden to themselves, and common nuisances everywhere. When away from the table, they cannot open their

mouths without reciting their woes and bewailing their discomfort. From headaches, sour stomachs, water-brash, blues, nausea, retching, and Pseudo-Hygienists, "Good Lord deliver us." Tell a dyspeptic disciple of this school, for the ninety-ninth time, to stop overloading his stomach, and though he promises amendment, yet at the very next meal he proves recreant to his pledge. It is worth more to cure such of their theoretical delusions, than to direct them in the way of abstinence. We have seen such rub and work over the stomach a half-hour at a time, to help it mix up and digest the food! Such need to learn the simplest rules of self-control, and then any experienced nurse, a good old lady, for example, to be found in any neighborhood, can direct them in better habits, and instruct them in those practical matters which lead to health and usefulness.

CHAPTER IV.

PHYSICAL CULTURE. MENTAL CULTURE. SLEEP. CLEANLINESS.

394. A well developed physical organization is the primary condition of health. Among the Grecians, beauty ranked next to virtue, and an eminent author has said that "the nearer we approach Divinity, the more we reflect His eternal beauty." The expression of thought requires the physical accompaniments of language, gesture, etc. The human form is pliable, and with appropriate culture, can be made full of expression, grace and beauty. The cultivation of the intellectual powers has been allowed to supplant physical training to a great extent. The results are abnormally developed brains, faces *à la spirituelle*, delicate forms, sensitive nerves and short lives. That the vital and mental systems should be collaterally developed, is a fact generally overlooked by educators. A refined intellect cannot find its appropriate expression in a frail, uncultivated body. We have sought perfection in animals and plants. To the former we have given all the degree of strength and grace requisite to their peculiar duties; to the latter we have imparted all the delicate tints and shadings that fancy could picture. We have studied the laws of their existence, until we are familiar with every phase of their production: yet it remains for man to learn those laws of his own being, by a knowledge of which he may promote and preserve the beauty of the human form, and thus render it, indeed, an image of its Maker. When the body is tenanted by a cultivated intellect, the result is a unity which is unique, commanding the respect of humanity, and insuring a

successful life to the possessor. "You're a splendid animal," said Fowler to Henry Ward Beecher. "That's just it: that's the secret of my success," was the response. Clergymen and students are proverbially pale and emaciated. Mental concentration is generally the assigned cause, when in reality it is the result of insufficient exercise, impure air and dietetic errors. An intelligent journalist has remarked that "many of our ministers weigh too little in the pulpit, because they weigh too little on the scales." The Grecian Gymnasium and Olympian Games were the sure foundations of that integral education from which arose that subtle philosophy, poetry and military skill, that have won the admiration of nineteen generations. The simple leafy crown of the Olympian victor was far more precious to the Grecian youth than the gilded prize to our modern genius. A popular lecturer has truly remarked, that "we make brilliant mathematicians and miserable dyspeptics; fine linguists with bronchial throats; good writers with narrow chests and pale complexions; smart scholars, but not that union, which the ancients prized, of a sound mind in a sound body. The brain becomes the chief working muscle of the system. We refine and re-refine the intellectual powers down to a diamond point and brilliancy, as if they were the sole or reigning faculties, and we had not a physical nature binding us to earth, and a spiritual nature binding us to the great heavens and the greater God who inhabits them. Thus the university becomes a sort of splendid hospital, with this difference, that the hospital *cures*, while the university *creates* disease. Most of them are indicted at the bar of public opinion for taking the finest young brain and blood of the country, and, after working upon them for four years, returning them to their homes skilled indeed to perform certain linguistic and mathematical dexterities, but very much below par in health and endurance, and, in short, seriously damaged and physically demoralized." We read with reverence the sublime teachings of Aristotle and Plato; we mark the grandeur of Homer and the delicate beauties of Virgil; but we do not seek to reproduce in our modern institutions the gymnasium, which was the real foundation of their genius. Colleges which are now entering upon their career, should make ample provision for those exercises that develop the *physical man*.

America needs a Yale and West Point combined. This lack of bodily training is habitual with all classes, and its effects are written in indelible characters on the faces and forms of old and young. Malpositions in sitting restrict the movements of the diaphragm and ribs, and cause those diseases of the spine, or unnatural curvatures, which prove so disastrous to health and happiness. The head should be erect and the shoulders thrown backward, so that at each inspiration the lungs may be fully expanded.

395. **An Erect Carriage**, is not only essential to health, but lends grace and beauty to each movement. Although

Fig. 108.



man was made to stand erect, thus indicating his superiority over all other animals, yet custom has done much to curve that magnificent central column, upon the summit of which rests the "grand dome of thought." Many young persons, unconsciously acquire the habit of throwing the shoulders forward. The spinal column is weakened by this unnatural posture, its vertebræ become so sensitive and distorted, that they cannot easily support the weight of the body or sustain its equilibrium. It is generally believed that persons of sedentary habits are more liable to become "round shouldered" than any other class of individuals. Observation shows, on the contrary, that the manual laborer, or even the idler, often acquires this stooping posture. It can be remedied, not by artificial braces, but by habitually throwing the shoulders backwards. Deformed trunks and crooked spines, although sometimes the effects of disease, are oftener the legitimate results of carelessness. Jaques has remarked that "one's standing among his fellow men is quite as important a matter in a *physiological*, as in a *social* sense." *Walking* is one of the most efficient means of physical culture, as it calls all the muscles into action and produces the amount of tension requisite for their tonicity. The first essential to a healthful walk is a pleasurable object. Beautiful scenery, rambles in meadows rich with fragrant grasses, or along the flowery banks of water courses, afford agreeable stimuli which send the blood through the vital channels with unwonted vehemence and impart to the

cheeks the rich bloom of health. Our poets acknowledge the silent influence of nature. Wordsworth, the lake poet, has expressed this thought in his own chaste style:

“ The floating clouds their state shall lend
 To her: for her the willow bend; ‘
 Nor shall she fail to see,
 E’en in the motions of the storm
 Grace that shall mould the maiden’s form
 By silent sympathy.
 The stars of midnight shall be dear
 To her: and she shall lean her ear
 In many a secret place,
 Where rivulets dance their wayward round,
 And beauty, born of murmuring sound,
 Shall pass into her face.”

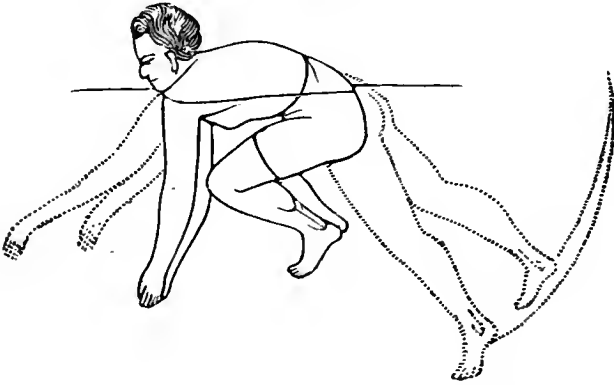
396. **Running** is a fine exercise for children and robust men, but should be indulged in moderately. The peculiar condition of woman unfits her for violent movements. Some author maliciously observes, that “women run merely in order to be caught.” We have modern Atalantas, yet the majority of our women are too weak, listless or indifferent to even walk rapidly. Restrictions have fettered the feet of our girls, many of whom, if untrammelled by fashion and their mammas, would be as fleet of foot as their brothers. If you hear them say, “She’s a little romp,” depend upon it, “*she*” is a bright, energetic girl, who will follow the footsteps of Hygeia wherever she may lead—in the fields, through the brooks, over the fences or on the highest limbs of the old apple tree—and when she returns from the race, mark the joyous laugh and the bright glow of health. When nature moulds her form into the delicate outlines of womanhood, she can no longer vie with her brothers in fleetness, and other exercises must replace the violent amusements of childhood. Running is *uncomanly* only so far as it is *unhealthful*.

397. **Skating and Rowing** are exercises that develop the muscles of the arms and limbs. The former should not be too prolonged and the clothing should be warm and appropriate. College regattas are rapidly becoming more popular, notwithstanding many severe criticisms from the press. As an exercise for the health and development of our students it should be

universally recommended. It expands the lungs and strenghtens the muscles of the arms and chest. Every college should be located near some inland lake or river, and a boat-house erected and provided with the necessary equipments. Amusements are just as essential to the student as a library or a laboratory.

398. **The Art of Swimming** was regarded by the

Fig. 109.



Athenians as an important accomplishment of the Grecian youth. We have our modern Hellesponts, but no Leander or Byron. As a hygienic agency it occupies a high rank in physical culture. The free and graceful movements

impart strength and elasticity to the muscles, and the magnetic virtue of the limpid waves invigorates the body, while the conquest of a new element inspires the whole being with a sense of triumphant power. It is a charming recreation for our wives and daughters. Again, it is not only a means of physical cul-

Fig. 110.



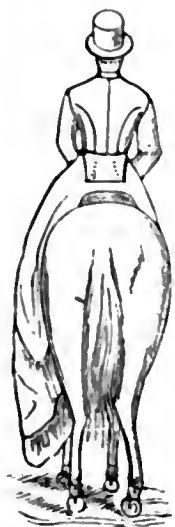
ture, but often essential to self-preservation. Figs. 109 and 110 represent the consecutive positions assumed by an expert swimmer.

399. **Base Ball, Cricket, Boxing and Fencing**, are all manly games when practiced only with a view to their hygienic advantages, and as such have our heartiest approval.

400. **Riding on Horseback** is a fine exercise for both sexes. It promotes digestion, increases the circulation and expands and develops the respiratory organs. The pure, fresh air, pleasant prospects, and pleasurable excitement impart

renewed vigor to the morning equestrian. In the Southern

Fig. 111.



States it is a universal accomplishment, and children are taught to ride as well as to walk. In the highlands of bonnie Scotland, the chase is a favorite pastime, and Scottish lads, mounted on their swift coursers, span crag and fell with a celerity that would render the American youth breathless. And no people are more remarkable for health and handsomely developed forms, than our highland friends.

401. **Dancing.** "Dancing is an invention of the devil," is the verdict of learned and dignified synods: and as it is usually conducted, it must be confessed that their disapproval is well founded. The clergy, as a class, are not a set of ascetics, nor are they inclined to condemn any practice unless they see in it tendencies pernicious to society.

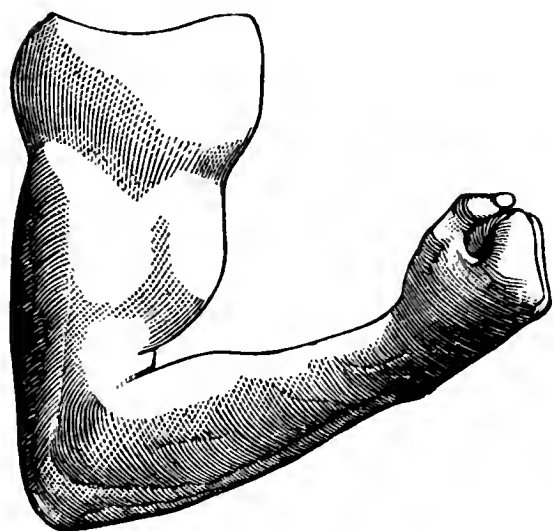
The fashionable, promiscuous ball, protracted far into night, or even till the dawn of morning, in a heated atmosphere, and to the sound of voluptuous music, is injurious both to health and morals. It merits all the condemnation it has ever received.

It seems impossible to exclude from these gatherings men who are unchaste in thought and impure in life. And how can we consent to have our virtuous sisters or daughters subjected to the delicate and skillful manipulations of those whose touch, whose very *look* even, is charged with a magnetic influence that excites unhallowed desires, and "sets on fire the courses of nature"? But notwithstanding the fact that the dance has been perverted to the basest purposes—been made the fruitful source of dissipation, and has often laid the foundation for disease, it is still capable of being made to minister to health and happiness. As a means of physical culture, it favors the development of the muscular system, and is promotive of health and cheerfulness. When practiced for this purpose, Jacques terms it "the best of all indoor exercises, as it brings to bear upon the physical system a great number of energizing and harmonious influences."

402. **The Exercises of the Gymnasium** are especially productive of health and longevity. The most important

of these are, balancing, leaping, climbing, wrestling and throwing,

Fig. 112.



The Gymnast's Arm.

all of which are especially adapted to the development of the muscles. In conclusion, we offer the following suggestions, viz: (1.) All gymnastic exercises should be practiced in the morning, and in the open air; (2.) Extremes should be avoided; and, (3.) It must always be borne in mind, that their chief object is to combine, in a proper proportion, mental and physical development. In every re-

lation of life we should cultivate all those faculties which pertain to our physical, moral and mental natures, subdue our passions, and nature will bestow her richest rewards of health, beauty, and happiness.

MENTAL CULTURE.

403. The brain, like all other organs of the body, requires alternate exercise and repose; and, in physical endurance, it is subject to general physiological laws. When exercised with moderation it acquires strength, vigor, and an accelerated activity. Excessive mental exertion is liable to result in softening of the brain, and various nervous diseases, sometimes culminating in insanity, and in many instances proving fatal to life. The mere votaries of pleasure who discard all effort of the mind, fall into the opposite error. In all cases of intellectual activity, the exertions should be directed to some subject interesting to the student. In this manner duty will become a pleasure, which in turn will reinvigorate the mental functions.

404. When the mind is confined to one subject for any considerable length of time together, it becomes fatigued, and requires relaxation, *recreation*, **REST**. This may be obtained by directing the attention to some other subject, either study or

amusement, the latter of which is preferable. The amusement, however, may be of an intellectual or physical character, or both combined, and will, if properly conducted, restore energy and vigor, to both mind and body.

405. Prominent among physical phenomena is the mutual relation between the brain and the organs of nutrition. Mental exertion should be avoided for at least one hour after a hearty meal, and all mental labor which requires concentration of thought ought to be accomplished in the earlier portion of the day, when the brain is refreshed and repaired by the night's repose. The "midnight oil" and emaciated, dyspeptical literati, are inevitable concomitants. Mental, like physical endurance, is modified by age, health, development, etc.: also, a person accustomed to concentration of thought, can endure a longer mental strain than the one inured to manual labor. One of the most injurious American customs, is the cultivation of the intellect at the expense of the physical powers.

406. **Mental Culture in Childhood.** One of the greatest mistakes which people make in the management of their children, is to overtask their mental faculties. Although it is exceedingly gratifying to parents to see their children acquire knowledge, and manifest an understanding far beyond their years, this gratification is often attended with a terrible expense, for precocious children are apt to die young. The brain and nervous system of children are delicate; they have not yet acquired the powers of endurance which older persons possess. The greater portion of the brain nutriment assimilated, is required for growth and organic development, and they can ill afford its expenditure for mental manifestations. They receive impressions easier and learn much more readily than in after life, but it is at the expense of the physical organization. Their mental faculties continue to be developed by the expenditure of brain nutriment, while physical growth and the powers of endurance are arrested. The consequence of this is, that the physical organization is made to support the mental, and the once bright and healthy child, with a body unable to keep pace with the mind and resist the influences of disease, ekes out a miserable existence, or fills an early grave. It is much better to give physical development the precedence, that the mental

organism may be well supported and its operations carried into effect; for it must be apparent to all that an ordinary intellect in a *healthy* body, is capable of accomplishing infinitely more than a strong mind in a *weak* body. Fowler and Wells, in a work on Phrenology, say: "Would you become great mentally, then first become strong cerebrally. Or, would you render that darling boy a great man, first make him a *powerful animal*. Not that all powerful animals are great men, but that all great men are, and must needs be, powerful animals. Our animal nature is the basis of all mental and moral functions." Regularity should be observed in exercising the mental functions. For this reason a fixed order in the pursuit of any literary occupation is very essential. The pursuit of the most abstruse studies will thus become habitual and comparatively easy, a sequence of systematic application. Mental labor should always cease when the train of thought becomes confused, and there is the slightest sensation of depression. All distracting influences should be absent from the mind, in order to facilitate intense study, as the intellect cannot attend perfectly to two subjects at the same time. Painful sensations always have a tendency to paralyze mental exertion. Great care should be taken that the head is not subjected to injury of any kind, as it is almost invariably accompanied by some nervous derangement. Exposure to extreme heat should be carefully avoided: an attack of sun-stroke, not immediately fatal, may occasion tumors in the brain, or some analogous disease.

SLEEP.

407. For all animated beings sleep is an imperious necessity, as indispensable as food. The welfare of man requires alternate periods of activity and repose. It is a well-established physiological fact, that during the wakeful hours the vital energies are being expended, the powers of life diminished, and if wakefulness be continued beyond a certain limit, the system becomes enfeebled and death is the result. During sleep there is a temporary cessation of vital expenditures, and a recuperation of all the forces. Under the influence of sleep "the blood is refreshed, the brain recruited, physical sufferings are extinguished, mental troubles are removed, the organism is relieved, and hope returns to the heart."

The severest punishment which can be inflicted upon a person, is to entirely deprive him of sleep. In China, a few years since, three criminals were sentenced to be kept awake until they should die. To do this, it was necessary to keep a guard over them. The sentinels were armed with sharp-pointed instruments, with which to goad the victims and thus prevent them from sleeping. Life soon became a burden, and, although they were well fed during the time, death occurred sooner than it would have done had starvation been the punishment.

408. **Sleeping Rooms.** The sleeping room should be large, well ventilated, and the air within moderately cool. The necessity for a fire may be determined by the health of the occupant. In addition to maintaining a proper temperature in the room, a little fire will, no doubt, be useful—especially if in a grate—in securing good ventilation. The windows should not be so arranged as to allow a draught upon the person during the night, and yet so adjusted that he may obtain plenty of fresh air.

409. **The Bed** should not be too soft, but rather hard. It is a pleasant thought that feathers are going out of *fashion*. They give off animal emanations of an injurious character, and impart a feeling of lassitude and debility to one accustomed to sleeping on them. No more coverings should be used than are necessary to the comfort of the individual. Cotton sheets are warmer than linen, and answer equally as good a purpose.

410. **Sleeping Alone.** Certain bodily effluvia are thrown off from our persons, and where two individuals sleep together each inhales from the other more or less of these emanations. There is no doubt but that *consumption*, and many other diseases, not considered contagious, are communicated in this manner. When not practicable for individuals to occupy separate beds, the persons should be of about the same age, and in good health. Numerous cases have occurred where healthy, robust children, have “*dwindled away*” and died within a few months, from sleeping with old people. Again, those in feeble health have been greatly benefited, and even restored, by sleeping with others who were perfectly healthy.

411. **Time for Sleep.** *Night* is the proper time for sleep. It is then that the system is in a condition to yield to the importunities of Morpheus, and “seek kind nature’s sweet

repose." When day is substituted for night, the sleep obtained will not fully restore the exhausted energies of the system, for nature will not allow her laws to be broken with impunity.

Children require more sleep than old persons, and when very young are about the only ones that get a sufficient amount. The "troublesome little things" are sometimes stupefied with "soothing syrups," etc., in order to get them temporarily "out of the way," thereby laying the foundation for irreparable injuries. This custom cannot be too emphatically condemned, for the child will sleep enough if it be healthy, and this disposition be encouraged by habits of quietude.

412. **How to put Children to Bed.** The following characteristic lines are from the pen of Fanny Fern and contain such good counsel that we cannot refrain from giving them place: "Not with a reproof for any of the day's sins of omission or commission. Take any other time than bed-time for that. If you ever heard a little creature sighing or sobbing in its sleep, you could never do this. Seal their closing eyelids with a kiss and a blessing. The time will come, all too soon, when they will lay their heads upon their pillows lacking both. Let them at least have this sweet memory of happy childhood, of which no future sorrow or trouble can rob them. Give them their rosy youth. Nor need this involve wild license. The judicious parent will not so mistake my meaning. If you ever met the man or the woman, whose eyes have suddenly filled when a little child has crept trustingly to its mother's breast, you may have seen one in whose childhood's home 'dignity' and 'severity' stood where love and pity should have been. Too much indulgence has ruined thousands of children; too much love not one."

413. **Position in Sleep.** The proper position in sleep is upon the right side. The passage from the stomach to the bowels being on this side, this position favors the passage of its contents into the duodenum. Lying on the back is injurious, since by so doing the spine becomes heated, (especially is this the case if the person is sleeping on feathers,) the circulation is obstructed and local congestions are encouraged.

414. The position of the sleeper's head should be toward the north, since the magnetic currents flow from north to south, and

the nervous currents should take the same direction, so as to favorably influence the organic functions over which the base of the brain presides. The face should never be covered during sleep, since it necessitates the rebreathing of the same air as well as the emanations from the body.

415. **The Amount of Sleep.** The amount of sleep required varies with the age, habits, condition and peculiarities of the individual. No definite rule can be given for the government of all. The average amount required, however, is seven or eight hours out of the twenty-four. Some persons need more than this, while others can do with less. Since both body and mind are recuperated by sleep, the more they are exhausted the more is required. The student, or person employed mentally, should have more than the one who is merely expending muscular strength. Six hours of unbroken sleep does more to refresh and revive than ten when frequently interrupted. If it is too prolonged it weakens and stupefies both body and mind. If an insufficient amount is taken the flagging energies are not restored. Persons who eat much or use stimulants generally require more than others. In sleep—as with every habit—regularity is desirable. If a person retires at a certain hour for several nights in succession, it will soon become a habit. The same holds true with regard to rising. If children are put to sleep at a stated hour for several days in succession, they will soon become accustomed to, and really demand it.

CLEANLINESS.

416. “Cleanliness is indeed next to godliness,” and is essential to the health and vigor of the system. Its importance cannot be overestimated, and it should early be inculcated into the minds of the young. Cleanliness is the reverse of filth and slovenliness, and has been described as analogous to purity of mind. “Even from the body’s purity, the mind receives a secret sympathetic aid.”

417. When we consider the functions of the skin, with its myriads of minute glands, innumerable little tubes—employed in removing the worn-out, useless matter from the system, (§ 80), we cannot fail to appreciate the utility of frequent ablutions with soap and water. Unless these excretions are removed,

the glands are closed, their functions arrested, and unpleasant odors arise. Many persons think because they daily bathe the face, neck and hands, dress the hair becomingly and remove the dirt from their clothing that the *ultimatum* of cleanliness has been reached. In a hygienic point of view, bathing the *entire* body is of much greater importance.

418. Notwithstanding the necessity for cleanliness of the body, we occasionally meet with persons who, although particular with regard to their personal *appearance*, permit their bodies to be for *weeks* and even *months* without a bath. Such neglect should never exceed *one week*. Plenty of sunlight and at least two or three general baths each week are *essential* to perfect health. Cleanliness is necessary to health, beauty, attractiveness and a cheerful disposition. According to an ancient myth, beauty—the mother of love—is the daughter of the waves and sunlight. Water and sunlight still claim their offspring, and while the sunbeams aid in tinting beauty's form, it is moulded into more rounded and graceful proportions by the limpid waters.

419. Again, cleanliness should not only be promoted by repeatedly bathing the person, but by a frequent change of clothing, especially of that worn next the skin. Every one must have observed the unpleasant odor that the socks and other under-clothing acquire after a few days wear. This results from the impurities exhaled through the skin. These impurities should be removed with the clothing containing them, lest by being retained in contact with the skin they be reabsorbed into the circulation and become generators of disease.

CHAPTER V.

HYGIENE OF THE REPRODUCTIVE ORGANS.

420. The structures and functions of organized bodies are subject to continual alteration. The changes of nutrition and growth, which are constantly taking place in the tissues, are shown by absorption and assimilation, which render them at the same time the seat of repair and waste, of renovation and decomposition, of life and death. The plant germinates and blossoms, then withers and decays: animal life, in like manner, comes into being, grows to maturity, fades and dies. It is, therefore, essential to the propagation of life, that new organisms be provided to take the place of those which are passing out of existence. There is no vital process which presents more interesting phenomena, or those more incapable of explanation, than that of reproduction, which includes the *formation*, as well as the *development*, of new beings.

Since self-preservation is Nature's first law, the desire for food is a most powerful instinct in all living animals. Not inferior to this law is that for the perpetuation of the race; and for this purpose, throughout the animal and vegetable kingdoms, we find the Biblical statement literally illustrated, "Male and female created He them."

421. Health is the gauge by which the prosperity of a people is measured. Were we to trace the history of nations—their rise and fall—we would find that much of the license and crime, degradation and vice, as well as their decline and final oblivion, is due to the abuse of the reproductive organs. Since there is an intimate relation between mind and body, (¶ 157,) when the

body is enfeebled the mind becomes enervated. Morbid conditions of the body prevent the highest mental development; contrariwise, when the mind is debilitated, general depravity, physical as well as mental, is the result. The highest development of the body results from the equal and harmonious cultivation of all the mental powers. The perfect development and health of the physical organs is therefore essential to man's happiness. But before health can be insured the nature and general functions of the physical system must be understood. This being done, the question naturally arises, *How can health and longevity best be maintained?*

422. **Influence of Food.** We have previously noticed the effects which food, exercise and other hygienic agencies, have upon digestion, circulation and respiration; and we find that they exert a no less potent influence upon the health of the reproductive, than upon all of the other bodily organs. An excessive stimulation excites the passions and arouses the animal propensities. For this reason, children should not be immoderately indulged in highly seasoned viands. Those persons who have great muscular vigor are endowed with intense passions, and unless restrained by moral considerations, are very likely to be overcome by their vehement propensities.

Alcoholic Stimulus has a debasing influence upon the whole system, and especially upon the procreative organs; it excites the animal and debases the moral nature (§ 167); it exhausts the vitality, and, after the excitement, which it temporarily induces, has passed, the body is left in a prostrated condition. Thus drunkenness is a concomitant of sensuality.

423. **Physical Labor Modifies the Passions.** Labor consumes the surplus vitality which a person may possess, and no better protective can be found against the gratification of the passions, unless it be high moral training, than daily toil extended to such a degree as to produce fatigue. Labor determines the blood to the surface and to other parts of the body, and prevents morbid fluxion or excitement of the sexual centers. It is a well-established proposition in Hygiene, that *normal exercise promotes the strength and development of every organ*. If, therefore, by education or association, the passions of the child be excited, they will be increased. If, on the contrary, he

be taught to avoid these social or solitary evils, they will be abated. Let him be educated to work, and other faculties of the mind, with corresponding vigor, will assert their sway, the purposes will be strengthened, the determination intensified, and the body better developed, for *chastity* is the sequence of the perfect development of man.

424. **Climatic Influences.** Individuals have their peculiarities characteristic of the nation to which they belong. We find that *climate* exerts a powerful influence upon mankind. In tropical regions the people are enervated, effeminate, and sensual. They live in luxury and ease, vice is unrestrained and license unbridled. Proportionately as the animal propensities predominate, will the mental faculties be in subjection. Hence, races indigenous to those latitudes rarely produce scholars or philosophers. Warmth superinduces the development of the reproductive organs. Men and women become mature at a much earlier age in those regions, than in countries where the temperature is lower. In like manner there is a tendency to premature enfeeblement, for the earlier the system ripens, the sooner will it deteriorate.

425. **Man is a Social Being.** The earliest account of him reveals the fact, that his Creator did not design him to live in seclusion, for we find him with his "helpmeet" in his Eden Home. History shows that when man has been deprived of the society of woman, he has become reckless, vicious, depraved and even barbarous in his habits, thus illustrating the sentiment: "It is not good for man to be alone." Associations promote mental and physical development—*physical*, because the body cannot be perfectly developed unless the mind be cultured. The development of a person implies the unfolding of every power, both physical and mental. Nothing so regulates and restrains passion as a healthy condition of the organs through which it finds expression. And every organ of the body is *powerful* in proportion to its *soundness*. The propensities play a prominent part in the education of the child. When properly disciplined and held in subordination to the higher faculties, they constitute an important factor in the economy of man. Boys are more liable to be morbidly excited when secluded from the society of girls, and *vice versa*. Again, when

the sexes are accustomed to associate, the passions are not apt to be aroused; because of the natural, antagonizing, constitutional elements. The influence of the one refines, energizes and ennobles the other. Let children be taught to understand their natures, and knowing them, they will learn self-government. "As man rises in education and moral feeling he proportionately rises in the power of self-restraint; and consequently as he becomes deprived of this wholesome law of discipline he sinks into self-indulgence and the brutality of savage life."

426. The passions may be aroused by the language, appearance, or dress of the opposite sex. A word spoken under the impulse of purity, is often rendered in a very different version by one whose passions color the thought, and made to convey an impression wholly unlike that which was intended by the speaker. So, too, the dress may be of such a character as to excite the animal nature. The manner in which the apparel is worn is often rendered so conspicuous as to become bawdy, thereby appealing to the libidinous desires, rather than awakening an admiration for the mental qualities.

427. **Obscene Literature.** Literature is a powerful agent either for good or evil. If we would improve the morals, *choice* literature must be selected, whether it be that which realizes the ideal, or idealizes the real. Obscene literature—books written for the express purpose of intensifying sexual desires in the young—goads to an illicit gratification of the passions and ruins the moral and physical nature.

It not unfrequently happens that a child is born with a vigorous mental organism which gives earnest of a brilliant future, but manhood finds him incompetent, debilitated and totally incapacitated for mental or manual labor. This may be the result of youthful indiscretion, ignorantly committed, but not unfrequently it is the effect of a pernicious literature which inflames the imagination, tramples upon reason, and pictures to the youth a realm where the passions are the ruling deities.

428. Many persons are born into the world with disordered organizations for which they are not responsible. Such are entitled to the sympathy of humanity. Dyspepsia, scrofula, consumption and a thousand ills to which mankind is heir, are transmitted from parents—the results of ill-assorted marriages.

Intoxicated parents engender offspring utterly demented. Children of healthy parents, who have good constitutions temperamentally adapted, are usually healthy and intelligent. Frequently in a family of children, who have the same parents, there are marked varieties of character. One manifests great precocity, another is below the average in mental attainments; one is amiable, another irritable in disposition; indeed, there are often as great differences in children of the same, as of different families. This is due to the physical and mental conditions of the parents, more especially the *mother*, not only at the time of the genesis, but also during the period intervening between conception and the birth of the offspring.

429 The ancients regarded courage as the principal virtue. By us, *purity* is so estimated. Personal purity is an essential requisite to the growth and perfection of the character. Purity is inward, secret, self-sufficing, thoroughly and intimately personal. In a word, "purity lives and derives its life from the spirit of God." In proportion as one *resists* temptation, is he virtuous. Hence, Diana should ever guard the portals to the highest sanctuary of the human heart, its "holy of holies"—love and truth.

430. **Self-abuse.** Untold are the miseries which arise from the pollution of the body. Self-abuse is one of the most prolific sources of evil, since it leads to the degradation of body and mind. It is practiced more or less by both sexes, and the habit once established, it is with the greatest difficulty that it can be overcome. It is the source of numerous diseases which derange the functional activity of the organs involved, and eventually impair the constitution. This solitary vice is often practiced by those ignorant of its dangerous results, and diseases are incurred when it is too late to redeem the broken-down constitution. Statistics show that insanity is frequently caused by masturbation.

431. Immoderate indulgencies in any practice are deleterious to an individual. Emphatically true is this with regard to sexual excesses. Not unfrequently does the marriage rite "cover a multitude of sins." The abuse of the marital relation produces the most serious results to both parties, and is a prolific source of some of the gravest forms of disease.

Prostatorrhœa, spermatorrhœa, impotency, hypochondria, and general debility of the procreative organs, arise from sexual excesses.

432. The health of the reproductive organs can only be maintained by leading a *temperate* life. The food should be of a nourishing, not stimulating, nature. Alcoholic beverages, opiates and narcotics, should be avoided. The apparel should be appropriate and comfortable, but worn loosely so as not to compress any part, and cause congestion of the generative organs. Cleanliness is an essential requisite to their health; hence, frequent baths are indispensable. Lascivious thoughts should be displaced by cultivating a taste for that literature which is elevating in its nature, and the associations should be refining and ennobling. Let these conditions be observed, and virtue will reward her subjects with a fine physique and noble character.

433. Woman, from her organization, has less strength and endurance than man. Much, however, of the suffering and misery which she experiences is due to an insufficient care of the generative organs. The menstrual function is generally established between the ages of twelve and fourteen. For want of proper instruction, many a girl has inaugurated derangements which have enfeebled her womanhood or terminated her life. At this critical period the mother cannot be too considerate of her daughter's health. Preceding the first appearance of the menses, girls usually feel aching in the back, pains in the limbs, chilliness, and general languor. The establishment of this function relieves the urgency of these symptoms. Irregular and painful menstruation may arise from inflammation of the uterine organs, or may be the result of contracting cold just before, or during the monthly flow. Every precaution should be taken at this period of indisposition to keep the feet dry and warm, to freely maintain a general circulation of the blood, to avoid *overexertion*, and to refrain from standing or walking too much. Menstrual derangements should never be neglected, since they predispose to affections of the brain, liver, heart and stomach, induce consumption and frequently end in death. Young women should, therefore, properly protect themselves, and avoid extremes of heat and cold.

PART III.

RATIONAL MEDICINE.

CHAPTER I.

PROGRESS OF MEDICINE.

434. During the last half century a great change has been made in the treatment of disease. Medicine has advanced with rapid strides, from the narrow limits of mere Empiricism, to the broader realm of Rationalism, until to-day it comprehends all the elements of an Art and a Rational Science. Scientific researches and investigations have added many valuable truths to the general fund of medical learning, but much more is due to keen observation and empirical discovery. In a word, the present advancement of medicine has been attained through the Baconian method of Induction. It is of little or no interest to the invalid to know whether the prescribed remedy is organic or inorganic, simple, compound, or complex. In his anxiety and distress of body, he seeks only for relief, without regard to the school to which the attendant physician belongs. But this indifference of the patient does not obviate the necessity for a thorough, scientific education on the part of the practitioner. The question then arises, how can this requisite mental culture be obtained? Notwithstanding all the laws enacted to raise the standard of medicine, and thus protect the public from *quackery*, there yet exists a disposition among many to cling to all that savors of the miraculous or supernatural. To insure the future advancement of "the healing art," physicians must instruct

mankind, by compiling for their perusal comprehensive works on Physiology, Hygiene, and Medicine. When the people understand the rationale of diseases—their cause, prevention, and cure—they will not be so easily deceived, and practitioners will be obliged to better qualify themselves for their labors. The practice of medicine is yearly growing more successful. New and improved methods of treating disease are being discovered and developed, and the conscientious physician will avail himself of *all* the means, by a knowledge of which he may benefit his fellow-men. The medical profession is divided into three “schools,” or sects. There are numerous divisions of minor importance which merit only a passing notice.

THE ALLOPATHIC, REGULAR, OR OLD SCHOOL OF MEDICINE.

435. This is the oldest existing branch of the profession. To it is due the credit of collecting and arranging the facts and discoveries that form the basis of “the healing art.” It has done, and is doing, much to place the science of medicine on a firm foundation. To the text-books of this school, every student who would thoroughly qualify himself for medical practice must resort, to gain that knowledge upon which depends his future success. The early practice of this branch of the profession was necessarily crude and empirical. Conservative in character, it has ever been slow to recognize new theories and methods of practice, and has failed to adopt them until they have been established as incontrovertible facts. This conservatism—the offspring of egotism and intolerance—was manifested in its opposition to Harvey when he propounded the theory of the circulation of the blood, and to Jenner when he discovered and demonstrated the beneficial effects of vaccination. Thus has it ever defended its established opinions against innovation; yet, out of this very conservatism has grown much real good, for, although it has wasted no time or energy in the investigation of theories, it has accepted them when established as facts. In this manner it has added to its fund of knowledge only those truths which are of real and intrinsic value.

The practice of medicine may be divided into three eras. In the first, it was a system of rank empiricism. Ignorant priests

or astrologers administered drugs, concerning the properties of which they had no knowledge, to appease the wrath of mythological deities. In the second or heroic era, the lancet, mercury, antimony, opium and the blister, were employed indiscriminately as the *sine qua non* of medical practice. The present, with all its scientific knowledge of the human structure and functions, and its vast resources for remedying disease, may be aptly termed the *liberal era of medicine*. The Allopathic, differs from the other schools, mainly in the *application* of remedies. In its ranks are found men, indefatigable in their labors, delving deep into the mysteries of nature, and who, for their scientific attainments and humane principles, may justly be considered ornaments to society and their profession—a blessing to the race.

HOMŒOPATHY

436. Although this school is of comparatively recent origin, yet it has gained a powerful hold upon the public favor, and numbers among its patrons very many intelligent citizens. This fact alone indicates that it possesses some merit. The Homœopathic differs from the Allopathic school principally in its "*law of cure*," which, according to Hahnemann, (its founder), was the doctrine of "*similia similibus curantur*," or "like cures like." Its method of treatment is founded upon the assumption that if a drug be given to a healthy person, symptoms will occur which, if transpiring in disease, would be mitigated by the same drug. While it may be exceedingly difficult for a member of another school to accept this doctrine and comprehend the method founded upon it, yet no one can deny that it contains a measure of truth. Their remedies are administered in such extremely small doses, that their effects often seem purely imaginary. This fact offers a consistent demonstration of the hygienic principle that there exists an "inherent vital force, the tendency of which is to restore, build up and maintain function and structure intact, *the healing power of nature*."

437. Imbued with the spirit of progress, many of its most intelligent and successful practitioners have resorted to the use of larger quantities of medicine. This school associates "Hydro-pathy" with its practice, and always inculcates rigid dietetic and hygienic regulations. Many Homœopathic remedies are

thoroughly triturated with sugar of milk, which renders them more palatable and efficacious. Whether we attribute their cures to the infinitesimal doses which many Homœopathists employ, to their "law of cure," to good nursing, or to the *vis medicatrix naturæ*, it is nevertheless true that their practice is measurably successful. No doubt the Homœopathic practice has modified that of the other schools in proving that diseases may be alleviated by smaller quantities of medicine than were formerly employed.

ECLECTICS.

438. This school, founded by Wooster Beach, M. D., in opposition to the Allopathic, or regular school of medicine, instituted the most strenuous opposition to the employment of Mercury, Antimony, the Blister and the Lancet, all of which at that time were considered the ultimatum—the "Alpha and Omega" of the recognized medical practice. The members of this new school boldly proclaimed that the action of heroic and noxious medicines was diametrically opposed to the operation of the *vital forces*, and proposed to substitute in their stead safer and more efficacious agents, derived almost exclusively from the vegetable kingdom. At the origin of this medical sect, in consequence of the indiscriminate employment of heroic remedies being followed by deleterious results, the public mind was prepared to accept any method that promised equal success without its dangers. The Eclectics have investigated the properties of indigenous plants and developed numerous valuable remedies from a sadly neglected field of resources which a kind and bounteous nature has so generously supplied for the healing of her children. Marked success attended the employment of these agents. In 1852 a committee on "Indigenous Medical Botany," appointed by the "American Medical Association," (Old School), acknowledged that their practitioners had been extremely ignorant of the medical virtues of plants, even of their own neighborhoods. The employment of Podophyllin and Leptandrin as substitutes for mercurials has been so successful, that they are now used by practitioners of the Old, as well as those of the Homœopathic school, and large quantities are annually exported from this country to Europe. The spirit of this school

has been revolutionary, and although claiming to have been founded upon liberal principles, it may be questioned whether its adherents have not been quite as exclusive and dogmatic as those whom they opposed. But a reaction is taking place, and many of its practitioners now employ some of the agents that they once rejected and condemned. The members of this school have added many important remedies to the *Materia Medica* and contributed some valuable works to medical literature. Their writings are important and useful contributions to the physician's library. Notwithstanding their imperfections they have achieved a glorious work and aided materially in the improvement of the practice of medicine.

HYDROPATHY.

439. This sect, founded by Preisnitz, believes in the efficacy of *Water* as a cure for all diseases. While it has drawn attention to a great truth, like all other One-Idea-Pathies, it has erred in excluding others which are equally valuable. Instrumental in overcoming the prejudice against the use of water in disease and proving that as a curative and hygienic agent it is of untold value, they have conferred a precious boon upon suffering humanity. The author can remember the time, when sick and burning with fever, suffering the unspeakable torments of thirst, he begged for one swallow of water, which was denied him by the physician. But he who then prohibited this element is now lavish in its use.

OTHER SECTS.

440. Finally we have Physio-Medicalists, Mesmerists, Electropathists, Antipathists and Clairvoyants. Each may contain some grains of truth, yet when considered to the exclusion of other doctrines, they are woefully deficient.

THE LIBERAL OR INDEPENDENT PHYSICIAN.

441. After this brief review of the various medical sects, the reader may be curious to know to which the author belongs. I believe that "all are but parts of one stupendous whole." I am not restricted by the tenets of any medical school, but claim the right and privilege, nay, consider it a duty, to select

from all, such remedies as careful investigation, scientific research, and an extensive experience, have proved valuable. I resort to any and every agent which has been proved efficacious, whether it be vegetable or mineral.

And here arises a distinction between *sanative* remedial agents and those which are *noxious*. Many practitioners deplore the use of poisons, and advocate innocuous medicines which produce only sanative results. I agree with them in one proposition, viz: that improper medicines not only poison, but oftentimes utterly destroy the health and body of the patient. Every physician should keep steadily in view the idea of *final effects*, as well as *present relief*, and never employ any agent without regard to its *ulterior consequences*. Nevertheless, an agent that is noxious in *health*, may prove a valuable remedy in *disease*. When morbid changes have taken place in the blood and tissues, when a general diseased action of the bodily organs has usurped the healthful functions, then an agent that is poisonous in health may prove curative. Having stated my proposition, I will give an illustration to substantiate its truth. It is admitted that alcohol is a poison; that it prevents healthful assimilation, solidifies pepsin, begets a morbid appetite; that it produces intoxication (poisoning), and that its habitual use will eventually destroy the body. It is, therefore, neither a hygienic nor a sanative agent, but strictly a noxious one; yet, its very distinct antiseptic properties render it valuable for remedial purposes, as these qualities will promptly arrest that fatal form of decomposition of the animal fluids occasioned by snake-venom, which produces its deadly effects in the same manner that a drop of yeast ferments the largest mash. Alcohol checks this poisonous and deadly process and neutralizes its effects. Thus, alcohol, although a noxious agent, sustains a special curative relation to a morbid state of the human system; yet, its *general* remedial effects do not entitle it to the rank of a *hygienic agent*. I believe that medicine is undergoing a gradual change from the darkness of the past, with its ignorance, superstition and barbarity, to the light of a glorious future—the bright radiance of intelligent truth. At each successive step in the path of progress, it approximates more closely to this truth, and brings medicine one degree nearer the realm of an exact science. The

common object of all medical schools is the same, viz: the alleviation of human suffering. They are founded upon a common basis, viz: the admitted facts of Anatomy, Physiology, Chemistry and Surgery. The only difference is in the remedies employed, the size of dose administered, and the immediate results attained. These are insufficient grounds for bitter sectarianism. We are all co-laborers—students of nature. Before us lies a boundless field for investigation. There are new conditions of disease to be understood, new remedies to be discovered, and new properties of old ones to be examined.

442. I do not deplore the fact, that there are different schools in medicine, for, as this science has not reached perfection, they tend to stimulate investigation. The remarks of Herbert Spencer on the "Multiplication of Schemes of Juvenile Culture," may be pertinently applied to the different schools in medicine and with increased force. He says: "It is clear that dissent in education results in facilitating inquiry by the division in labor. Were we in possession of the true method, divergence from it would, of course, be prejudicial; but the true method having to be found, the efforts of numerous independent seekers carrying out their researches in different directions, constitute a better agency for finding it than any that could be devised. Each of them struck by some new thought which probably contains more or less of basis in facts—each of them zealous on behalf of his plan, fertile in expedients to test its correctness, and untiring in his efforts to make known its success—each of them merciless in his criticism on the rest—there cannot fail, by composition of forces, to be a gradual approximation of all towards the right course. Whatever portion of the normal method any one of them has discovered, must, by the constant exhibition of its results, force itself into adoption; whatever wrong practices he has joined with it must, by repeated experiment and failure, be exploded. And by this aggregation of truths and elimination of errors, there must eventually be developed a correct and complete body of doctrine. Of the three phases through which human opinion passes—the unanimity of the ignorant, the disagreement of the inquiring, and the unanimity of the wise—it is manifest that the second is the parent of the third."

I believe the time is coming when those maladies which are now considered fatal will be readily cured—when disease will be disarmed of its terrors. To be successful, a physician must be *independent*, free from all bigotry, having no narrow prejudice towards his fellow-men, *liberal*, accepting new truths from whatever source they flow, free from the stringently restrictive rules of “societies,” and an earnest laborer in the interests of the Great Physician.

CHAPTER II.

REMEDIES FOR DISEASE.

443. It will be my aim, throughout this volume, to prescribe such remedies as are within the easy reach of all and which may be safely employed. Many of those of the vegetable class are indigenous to this country, and may be procured in their strength and purity, at the proper season, by those residing in the localities where they grow, while all others advised may be obtained at any respectable drug store. I will endeavor to recommend such as can be procured and prepared with the least trouble and expense to the patient, when it is believed they will be equally as efficacious as others.

PROPRIETARY MEDICINES.

444. Having the invalids best interest in view, it will often happen that I cannot prescribe better or cheaper remedies, nor those that are more effective or easily obtained, than some of my standard preparations, which are generally sold by all druggists. I am aware that there is a popular, and not altogether unfounded, prejudice against "patent medicines," owing to the small amount of merit which many of them possess. The appellation, "Patent Medicine," does not apply to my remedies, as no patent has ever been asked for or obtained upon them, nor have they been urged upon the public as "cure-alls." They are simply some favorite prescriptions, which, in a very extensive practice, have proved their superior remedial virtues in the cure of the diseases for which they are recommended.

445. From the time of Hippocrates the Father of Medicine, down to the present day, physicians have classified diseases according to their causes, character or symptoms. It has been

proved that diseases apparently different may often be cured by the same remedy. The reason for this singular fact is obvious—a single remedy may possess a variety of properties. Quinine, among other properties, has a tonic quality which suggests its use in cases of debility; an antiperiodic, by which it is efficient in ague; and a febrifuge property which renders it efficacious in cases of fever. The result produced will vary with the quantity given, the time of its administration, and the circumstances under which it is employed. Every practicing physician has his favorite remedies, which he oftenest recommends or uses, because he has the greatest confidence in their virtues. The patient does not know their composition. Even prescriptions are usually written in a language unintelligible to any but the druggist. As much secrecy is employed as in the preparation of proprietary medicines. Does the fact that an article is prepared by a process known only to the manufacturer render that article less valuable? How many physicians know the elementary composition of the remedies which they employ, some of which have never been analyzed? Few practitioners know how Morphine, Quinine, Podophyllin, Leptandrin, Pepsin, or Chloroform, are made; or how nauseous drugs are transformed into palatable elixirs; yet they do not hesitate to employ them. Is it not inconsistent to use a prescription, the composition of which is unknown to us, and discard another preparation simply because it is accompanied by a printed statement of its properties with directions for its use? What makes a medical prescription or compound proprietary? Let us lay aside all prejudice, and examine the facts. It is obvious that a physician engaged in an extensive practice cannot find time to write all his prescriptions, their uses, etc., etc. Printing them saves much time and manual labor, which can be more advantageously employed; and yet our Government forbids the use of printed labels on bottles without the addition of a revenue stamp. All medicines thus prepared are termed proprietary. Thus, I am now obliged by law, either to write full directions and advice, or else, if I print them and paste them on the bottles, they are regarded as proprietary medicines and must be stamped as such. My practice long since became so extensive that I could not possibly write out all directions, even had I preferred so to do. Putting up in a uniform and peculiar

style, and designating by certain definite names those compounds which, from their superior virtues have become favorites in my practice, and consequently have been most frequently prescribed for certain ailments, throws around them the protection of the common laws of all civilized countries, which recognize the exclusive right to the use of any peculiar mark or style of wrapper that proprietors may adopt as their Trade Mark, whereby their goods may be distinguished. Thus the people are protected against fraud and imposition, being sure of getting a genuine article, if they observe the peculiar design, color and style of wrappers in which the medicines are enclosed; while it renders them none the less valuable because the exclusive right to manufacture them is vested in a single individual. Because Vanderbilt possesses vast railroad interests, are railroads less valuable? Because a certain merchant prince controls the manufacture of cotton goods, is cotton cloth less useful? Because the Government retains the exclusive right to manufacture coin and currency, is the gold dollar of less value?

446. Swift says that "censure is the tax a man pays to the public for being eminent." Envious people are always jealous of the prosperity of others, and love to detract from their reputation. Occasionally, bitterness is aroused and invectives are hurled at me by physicians whose patients have been cured by my remedies. Several attempts to injure the reputation acquired by my standard preparations have been unmistakably traced to such a source. Nor is this spirit evinced only by Americans.

Sometime since the *Industrie Blatter*, a periodical published in Berlin, Prussia, and laying claims to a scientific character, published what was represented as being the formulæ or receipts for making Dr. Sage's Catarrh Remedy and Dr. Pierce's Golden Medical Discovery. The people were left to infer that these had been deducted from a careful chemical analysis of the medicines which were rapidly growing in popular favor in that, as well as in this and other civilized countries. The receipts were evidently invented by those jealous of the reputation and large sale of these medicines, and who were pecuniarily interested in endeavoring to check their sale. Notwithstanding, however, that the bogus receipts were so ridiculously preposterous as scarcely

to have been believed by the most unscientific, thoughtless and unsuspecting people, yet a paper of very high scientific pretensions, published in this country, copied the fictitious receipts from the German periodical. This they evidently did without a moment's reflection, for any consideration given by an intelligent mind to the receipts which contained well-known caustic and poisonous chemicals, would have condemned them as bogus fabrications, and proved the pretentious publishers of the paper that originally inserted them, either knaves or fools. On my attention being called to the matter, in order that some thoughtless and over credulous people might not be deceived and misled by seeing such an announcement, as well as to prove myself guiltless of perpetrating a wicked fraud upon the people, I went before a magistrate and made an oath to the fact that the said receipts were utterly false. My affidavit was sent to the publishers of the paper into which the bogus receipts had been copied, and in a subsequent issue an editorial notice was given to this effect.

447. Several medical and pharmaceutical journals of this country have published equally absurd formulæ, purporting to be the receipts for Dr. Sage's Catarrh Remedy and several of my other standard preparations. In refutation of all such reports, concocted by jealous physicians and rivals in the manufacture of medical compounds, I defy all the chemists in the world to ascertain, by analysis, the composition of any of my Family Medicines, as they contain ingredients that are new in medicine, and like nearly all vegetable extracts, there are no known re-agents, or chemical tests, by which their nature can be determined.

By the publication of these false reports, certain individuals, who lounge around and infest our large cities, gaining a livelihood by perpetrating all kinds of frauds upon the credulous, were thereby given the hint, that my medicines were universally popular, and that by advertising for sale bogus receipts for making them they could get lots of ignorant people to buy them. One Frank M. Reed, of 139 Eighth Street, New York, who publishes "Love and Courtship Cards," a "Fortune Teller and Dream Book," "The Mysteries of Love Making," "How to Woo and How to Win," and various other swindles, sends his dupes the following

in exchange for their stamps. It is copied from the papers alluded to and is as follows: "For Dr. Sage's Catarrh Remedy take eight grains Carbolic Acid, seven grains of Camphor, and two and a half grains of common Salt, the whole to be colored with a little Prussian blue." This makes a powerful caustic mixture as unlike Dr. Sage's Catarrh Remedy (which is perfectly unirritating, mild, soothing and pleasant) as light is from darkness. As "a burnt child dreads the fire," so if any have been so foolish as to have burned their noses with this caustic compound, thinking that they were using the same as Dr. Sage's celebrated Catarrh Remedy, they will, I hope, profit by the lesson thereby taught them and not be so ready to bite at every catchpenny advertising dodge that swindlers may offer them. For my Golden Medical Discovery the bogus receipt reads: "Take four drachms purified Honey, fifteen grains extract poisonous Lettuce, thirty grains of Opium, three and a fourth ounces dilute Spirits, three ounces water. Mix." Of this ridiculous bogus formula I will say, as I did under oath, *not one of the medicinal or poisonous ingredients therein given enters into the composition of my Golden Medical Discovery.* If further proof is required to satisfy any person that the receipt given above is utterly false let that person have the mixture, as given, compounded, and, not only will it be seen to be entirely unlike my Discovery in appearance, but if a further test is wanted, let a dose of it be taken. It will produce drowsiness and stupor, whereas my Discovery, taken in ever so large doses, produces no such effect. Other swindlers, located in different cities, and engaged in advertising for sale bogus receipts for making my medicines, send other ridiculous formulæ. One, sent out by a villainous knave located in Chicago, gives Blue Vitriol as the chief ingredient of Dr. Sage's Catarrh Remedy. This is only equaled in absurdity by another issued by parties in Philadelphia, in which the ingredients of Dr. Sage's Catarrh Remedy are given as "burnt Alum, white Vitriol, Sugar of Lead, and Prussiate of Iron," and of my Golden Medical Discovery as "simple Syrup and Tincture of Ginger."

448. In refutation of the various and ridiculous bogus receipts for making my medicines that have or may hereafter be published and circulated, I would say that I have, in dealing

with the people, ever been governed by the maxim that, "honesty is the best policy," and that "success makes success." Thousands of sufferers have obtained relief by the use of my remedies, and have thus been induced to recommend them to other thousands of sufferers. In this way I am constantly making *living* advertisements for myself and medicines. It is a common thing to hear people say that plenty of advertising will make a success out of anything, whether it has any merit or not. Nothing could be farther from the truth. Actuated by this delusive idea, thousands have rushed headlong into advertising, only to find themselves bankrupt in a little time. Not more than one in five hundred who engages in advertising medicines ever makes the undertaking a financial success, for the reason that a medicine to be successful, must possess *unusual* and *extraordinary* merit. It is not enough that it should be a remedy of *fair* efficacy; it must possess *superior* and *wonderful* remedial properties, for if it does not, those who use it with the most sanguine expectations will condemn it. They will expect much of it, and it must be equal to the test, or the proprietor will be ruined. For although a great display will, many times, create a considerable immediate demand for the article advertised, yet if that article does not possess real merit, this demand will be only temporary; the fraud will be detected, and the reaction will upset the proprietor and all his high expectations, long before he is able to recover the amount of money already expended. With this view of the subject, I have felt warranted in expending many hundred thousand dollars in advertising through the newspapers of this and other countries, feeling perfectly assured that the merits of my remedies were so great as to insure a financial success. And in this I have not been disappointed, for my sales have increased steadily year by year, until they exceed half a million dollars per annum. This grand success could never have been attained, had the medicines not possessed remarkable healing virtues.

The *Toledo Blade*, in an editorial alluding to my business, contains the following: "Great success is never achieved without merit. An article that holds the field year after year, and the sales of which increase regularly and rapidly, must have absolute merit." The article continues: "Dr. R. V. Pierce, of

Buffalo, N. Y., occupies our entire eighth page to-day with his various articles. We admit it because we know the Doctor, and know of his articles. We know him to be a regularly educated physician, whose diploma hangs on the wall of his office, and we know that he has associated with him several of the most eminent practitioners in the country. We know that parties consult him, by mail and in person, from all the States in the Union every day, and that they are fairly and honestly dealt with. We know that his medicines are sold in enormous quantities in every State in the Union, and very largely in many foreign countries. This grand result has been accomplished by two agencies: good, reliable articles—articles which, once introduced, work easily their own way—and splendid business management. They have succeeded because they ought to have succeeded.”

The course which has been pursued by some jealous, narrow-minded specimens of humanity, is in decided contrast to the conduct of those noble, liberal-minded men, whose consciences will not allow them to reject a good remedy simply because it is proprietary. That my medicines are esteemed by this portion of the profession, is proved by the fact that I receive many letters of consultation from eminent physicians. Frequently they ask my counsel in cases of sickness occurring in their own families. They can perceive the advantages I have gained by confining my attention to specialities, and thus acquiring greater skill in those departments.

449. In the manufacture of any pharmaceutical preparation, two conditions are essential to its perfection, viz: purity and strength of the materials, and appropriate machinery. The first is insured, by purchasing the materials in large quantities, whereby the exercise of greater care in selecting the ingredients can be afforded; and the second can only be accomplished where the business is extensive enough to warrant a large outlay of capital in procuring proper chemical apparatus. These facts apply with especial force to the manufacture of my medicines, their quality having been vastly improved since the demand has become so great as to require their manufacture in very large quantities. Some persons, while admitting that my medicines are good pharmaceutical compounds, object to them on the ground that they are too often used with insufficient judgment. I propose

to obviate this difficulty by enlightening the people as to the structure and functions of their bodies, the causes, character, and symptoms of disease, and by indicating the proper and judicious employment of my medicines, together with such auxiliary treatment as may be necessary. Such is one of the designs of this volume.

PROPERTIES OF MEDICINE.

450. It is generally conceded that the action of a remedy upon the human system depends upon its peculiar properties. The effects produced suggest the naming of these qualities, which have been scientifically classified. I shall name the disease from its characteristic symptoms, and then, without generally commenting upon all the properties of a remedy, recommend its employment. My reference to the qualities of any remedy, when I do make a particular allusion to them, I shall endeavor to make as easy and familiar as possible.

451. **Dose.** All persons are not equally susceptible to the influence of medicines. As a rule, women require smaller doses than men, and children less than women. The babe is very susceptible to the effects of an anodyne, even out of all proportion, relatively, to other kinds of medicines. The circumstances and conditions of the system increase or diminish the effects of medicine, so that an aperient at one time may act as a cathartic at another, and a dose that will simply prove to be an anodyne when the person is suffering great pain, will act as a narcotic when he is not. And this explains, to an extent, why the same dose will affect individuals differently, without taking into account the different temperaments or degrees of natural susceptibility. The following table is given to indicate the size of the dose, and is graduated to the age:

YEARS.	DOSE.	YEARS.	DOSE.
21	full.	4	1-6
15	2-3	2	1-8
12	1-2	1	1-12
8	1-3	$\frac{1}{2}$	1-20 to 1-30
6	1-4		

The doses mentioned in the following pages are proportioned for adults, unless otherwise directed.

452. **The Preparation of Medicines.** The remedies that I shall mention for domestic use are mostly vegetable. Infusions and decoctions of these will many times be advised on account of being more available than the tinctures, fluid extracts and concentrated principles, which I prefer, and almost invariably employ in my practice. Most of these medicinal extracts are prepared in my chemical laboratory under the supervision of a careful and skilled pharmacist. No one, I presume, would expect, with only a dish of hot water or a stew kettle, to equal in pharmaceutical skill the learned chemist with all his ingeniously devised and costly apparatus for extracting the active remedial principles from our medicinal plants. Yet infusions and decoctions are not without their value; and from the inferior quality of many of the fluid extracts and other pharmaceutical preparations in the market, it may be questioned whether the former are not frequently as valuable as the latter. So unreliable are a majority of the fluid extracts, tinctures and concentrated active principles found in the drug stores, that I long since found it necessary to have prepared in my laboratory, most of those that I employ. And to the reliability of the preparations that I secure in this way, I largely attribute my greatly increased success in the treatment of disease. Many times tinctures and fluid extracts are prepared from old and worthless roots, barks and herbs, that have wholly lost their medicinal properties. Yet they are sold at as high prices as those that are good. I have my tinctures, fluid extracts and concentrated active principles, manufactured from roots, barks and herbs that are fresh, and selected with the greatest care, when not dug or gathered specially for me, as most of them are. Many of the crude roots, barks and herbs found in the market are inactive from being gathered out of their season of maturity. And these, together with those that have been kept on hand so long as to have lost all medicinal value, are many times sold in large quantities and at reduced prices to be manufactured into fluid extracts and tinctures. Of course the preparations made from such materials are utterly worthless. Whenever the dose of fluid extracts, tinctures, and concentrated active principles, is mentioned in this chapter, the quantity advised to be taken is based upon my experience in the use of these preparations, as they are

made in my laboratory, and the smallest quantity that will produce the desired effect is always given. In using most of the preparations found in the drug stores, the doses have to be somewhat increased, and will not then always produce the desired effect, for reasons already given.

453. **The List of Medicines** that I shall introduce in this chapter will be quite limited, as I cannot hope, by making it extensive, that the non-professional reader would be able to prescribe with good judgment other than the simpler agents. Hence, I prefer, as I have no space in this volume to waste, to mention only a few of the most common remedies under each head or classification.

454. **Tinctures.** Very uniform and reliable tinctures may be made of most of our indigenous plants, by procuring the part to be employed, at the proper season, and, while it is green and fresh, bruising it well and covering it with good strong whisky, or with alcohol diluted with about one part of water to three of alcohol, corking tightly and letting it stand about fourteen days, when the tincture may be filtered or poured off from the drugs, and will be ready for use. Prepared in this imperfect manner, they will be found to be much more reliable than many of the fluid extracts found in the drug stores. An excess of the crude drug should be used in preparing the tincture to insure a perfect saturation of the alcohol with its active principles.

455. **Homœopathic Tinctures.** The tinctures prepared by several of the German and French pharmacutists, and called by them "Mother Tinctures," to distinguish them from the dilutions made therefrom, I have found to be very reliable, so much superior to any similar preparations made in this country that I regularly purchase from them all I use of *Pulsatilla*, *Staphisagria*, *Drosera* and several others. They are prepared with great care from the green, crude material, and although high in price, when compared with other tinctures, yet the greater certainty of action that I secure in my prescriptions by their employment more than repays for the expense and trouble in procuring them—for of what account is expense to the true physician when *life* may depend upon the virtue of the agent he employs?

456. **Infusions.** These are generally made by adding

one-half ounce of the crude medicine to a pint of water, which cover closely, keep warm, and use as directed. Flowers, leaves, barks and roots become impaired by age, and it is necessary to increase or diminish the dose according to the strength of the article employed.

457. **Decoctions.** The difference between a decoction and an infusion is, that the plant or substance is boiled, in the production of the former, in order to obtain its soluble medicinal qualities. Cover the vessel containing the ingredients, thus confining the vapor, and shutting out the atmospheric air which sometimes impairs the active principles and their medicinal qualities. The ordinary mode of preparing a decoction is to use one ounce of the plant, root, bark, flower or substance to a pint of water. The dose internally will vary from a tablespoonful to one ounce.

ALTERATIVES.

458. Alteratives are a class of medicines that in some inexplicable and insensible manner, gradually change certain morbid actions of the system, and establish a healthy condition instead. They stimulate the vital processes to renewed activity, and arouse the emunctories to remove matter that ought to be excreted. They facilitate the action of the secretory organs, tone them, and give a new impulse to their operations, so that they can more expeditiously rid the system of worn-out and effete materials. In this way they alter, correct and purify the fluids, tone the organs and re-establish their healthy functions. Alteratives may possess also tonic, laxative, stimulant or diuretic properties, or all of these may be combined in one agent. Or we may combine several alteratives in order to unite these different medical properties in one remedy. Some alteratives operate as a purgative in large doses, and require to be taken in diminished or broken doses. Generally, this class of remedial agents are given in proper doses, three or four times daily. I propose to enumerate only a few alteratives, and the doses that are usually prescribed; the list that I employ in my practice is very extensive, but cannot be made available for domestic use.

459. **Mandrake** (*Podophyllum Peltatum*), also called May-Apple, is a most valuable vegetable alterative. The root

is the part used. *Dose*—Of decoction, one to two teaspoonfuls; of tincture, six to eight drops; of fluid extract, three to five drops; of its active principle—Podophyllin—one-twelfth to one-eighth grain.

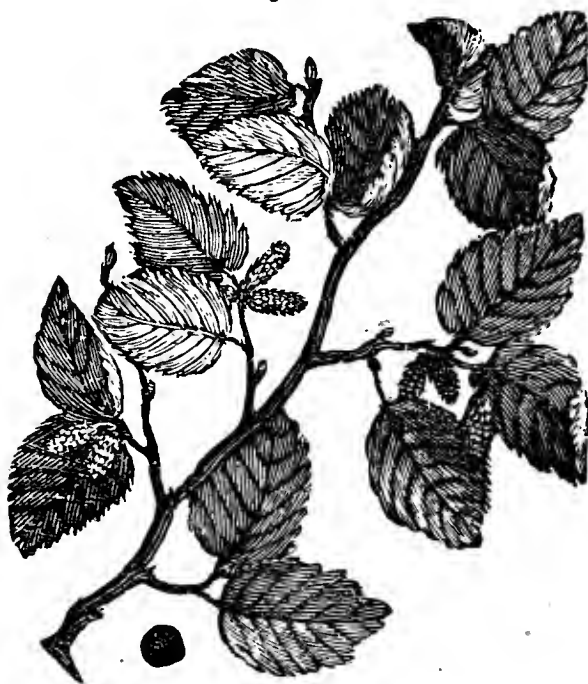
460. **Poke** (*Phytolacca Decandra*). Also called Skoke, Garget, Pigeon-Berry, etc. This is a valuable alterative. The root is the part used. *Dose*—Of decoction, one to three teaspoonfuls; of fluid extract, three to ten drops; concentrated principle—Phytolaccin—one-fourth to one grain.

461. **Yellow Dock** (*Rumex Crispus*). Part used—the root. *Dose*—Of the infusion, one to three fluid ounces three times daily; fluid extract, ten to thirty drops; tincture, twenty to forty drops.

462. **Burdock** (*Arctium Lappa*). The root is the part used. Burdock is a valuable alterative in diseases of the blood. *Dose*—Of tincture, one teaspoonful to a tablespoonful twenty minutes before meals; fluid extract, one to two teaspoonfuls.

463. **Tag Alder** (*Alnus Rubra*). Known as the Smooth,

Fig. 113.



Tag Alder.

Common, or Swamp Alder. The bark is the part used. Excellent in scrofula, syphilis, cutaneous and all blood diseases. *Dose*—

Of decoction, one to two tablespoonfuls three to five times daily; of tincture, one to two teaspoonfuls; fluid extract, one-half to one teaspoonful; concentrated principle—Aluin—one-half to one grain.

464. **Black Cohosh** (*Macrotys* or *Cimicifuga Racemosa*). Part used—the root. Common names are Black Snake-Root, Rattle-Root, Squaw-Root, etc. Black Cohosh is alterative,

Fig. 114.



Black Cohosh.

stimulant, nervine, diaphoretic, tonic and a cerebro-spinal stimulant. It is a useful, active and valuable remedy. Dose—Of

decoction, one-fourth to one ounce; tincture, ten to fifteen drops; fluid extract, five to ten drops; concentrated principle—Macroton,—one-eighth to one-half grain.

465. **Blood-Root** (*Sanguinaria Canadensis*), also known as Red Puccoon. Part used—the root. In minute doses Blood-Root is a valuable alterative, acting upon the biliary secre-

Fig. 115.



Blood-Root.

tion, improving the circulation and nutrition. *Dose*—Of powdered root, one-fourth to one-half grain; of tincture, one to two

drops; fluid extract, one-half to one drop. When given in fluid form it should be well diluted.

466. **Blue Flag** (*Iris Versicolor*). Part used—the root. *Dose*—Of the tincture, five to ten drops; of fluid extract, three to ten drops; of concentrated principle—Iridin—one-half to two grains.

467. **Sweet Elder** (*Sambucus Canadensis*). Sweet Elder-Flowers are a valuable alterative, diuretic, mucous and glandular stimulant, excellent in eruptive, cutaneous and serofulous diseases of children. An infusion, fluid extract or syrup, may be used when taking the Golden Medical Discovery. Both will be found invaluable for cleansing the blood and stimulating the functions to a healthy condition. *Dose*—Of the infusion of the flowers, from one-half to one ounce—if freely taken, will operate as a laxative; fluid extract, one-fourth to one-half teaspoonful. The flowers, or inner bark of the root, simmered in fresh butter, will make a good ointment for most cutaneous affections.

468. **Iodine.** This agent, in the several forms of Iodide of Potassium, Iodide of Ammonium, Iodide of Iron and Iodide of Lime, is largely employed by physicians, and many times with most happy results. But for domestic use I cannot advise its employment, as it is liable to injure the invalid, when its action is carried too far, which is apt to be the case, when not administered under the observation of a competent physician.

469. **Mercurials.** I would merely remark in this connection, that there are yet a few practitioners, who firmly believe in the remedial efficacy of mercurials, and employ them largely as alteratives and cathartics. My experience, however, embracing yearly the treatment of thousands of cases of chronic diseases, many very complicated, and which had already been subjected to the use of this class of medicines without improvement, indicates to me that there are far more speedy, safe and efficacious remedies for the restoration of the sick. Not only are mercurials objectionable because they act so slow, but the affinities of their elements cause them to unite with the tissues of the body in such a manner as to permanently injure its structures. Therefore it is a decided improvement in practice to be able to substitute safer and better remedies.

THE COMPOUNDING OF ALTERATIVES.

470. The efficacy of this class of remedies can be greatly increased by properly combining several of them into one compound. This requires a knowledge of Pharmaceutical Chemistry; *i. e.*, the preparation of compounds founded on the chemical relation and action of their several remedial active principles. Many practitioners make combinations of properties which neutralize each other's influence, instead of embracing their efficacy and increasing their remedial power.

471. **Dr. Pierce's Golden Medical Discovery,** or Alterative Extract. This compound is a highly nutritive and tonic preparation, combining the remedial properties of the best vegetable alteratives at present known to the medical profession. In perfecting this alterative compound, and likewise other standard preparations of medicine, I have made an outlay of many thousand dollars for chemical apparatus, machinery, etc., finally bringing my remedies to their present perfection, by a process entirely original with myself. Great pains are taken to obtain the vegetables at the right season of the year, properly cured, so that none of their remedial qualities will be impaired. Under these circumstances, I can with great confidence recommend my Golden Medical Discovery as one of the very best preparations of the alterative class. Like all others of this type, its action is insensible, producing gradual changes, arousing the emunctories to remove morbid materials, and at the same time toning the secretory organs. The manufacture of this compound is under the special supervision of a competent chemist and pharmacist, and it is now put up in bottles wrapped with full directions for its use. I can confidently recommend this compound whenever an alterative is required to cleanse the blood, tone the system, increase its nutrition, and establish a healthy condition. For these reasons, I shall often advise its employment.

472. **Dr. Pierce's Pleasant Purgative Pellets.** These pellets combine the pure, concentrated, active principles of several vegetable alteratives, and the result is, that within the small compass of a few grains, I have most happily blended and chemically condensed these properties, so that their action upon the animal economy is sanative and universal. They

awaken the latent powers, quicken the tardy functions, check morbid deposits, resolve hard concretions, remove obstructions, promote depuration, harmonize and restore the functions, equalize the circulation and encourage the action of the nervous system. They stimulate the glands, increase the peristaltic movement of the intestines, tone the nutritive processes, while aiding in evacuating the bowels. All this they accomplish without corroding the tissues or vitiating the fluids. Their assistance is genial, helping the system to expel worn out materials, which would become noxious if retained. Having expended their remedial powers upon the various functions of the body, they are themselves expelled along with other waste matter, leaving behind them no traces of irritation. This cannot be said of mercurials, or of other harsh mineral alteratives. These Pellets may be safely employed when the system is feeble, frail and delicate, by giving them in less quantities. *Dose*—As an alterative, only one or two Pellets daily.

ALKALIES.

473. **Alkalies.** These constitute an important list of remedial agents, their administration being frequently indicated. The employment of other medicines many times, will have to be preceded by the administration of an agent of this class, to neutralize excessive acidity in the stomach and bowels. Unless this is done, many medicines will fail in producing their specific effects.

474. **Sulphite of Soda** (*Sodæ Sulphis*). This salt, as well as the Hyposulphite of Soda, is not only generally preferable for administration on account of its unirritating character, and the smallness of the dose required, but also because it is a valuable antiseptic agent. The *Sulphite* must not be confounded with the *Sulphate* of Soda (Glauber's Salt). *Dose*—Three to ten grains.

475. **Salcratus** (*Potassæ Bicarbonas*). This is a favorite domestic anti-acid. *Dose*—Five to fifteen grains.

ACIDS.

476. As Alkalies are important and oft-indicated remedial agents, so their re-agents—Acids—are also frequently demanded to meet opposite conditions of the fluids of the system.

477. **Muriatic Acid.** This agent may be exhibited in doses of from five to ten drops, largely diluted in water or gruel.

478. **Aromatic Sulphuric Acid,** or Elixir of Vitriol, affords the most agreeable form of Sulphuric Acid for administration, and may be given in doses of from five to fifteen drops, largely diluted with water.

In taking acids, they should be sucked through a straw, and not allowed to come in contact with the teeth, as otherwise the latter organs will be injured by their effect; or should the acid come in contact with the teeth, the mouth should be immediately rinsed with a solution of salærated or soda, to neutralize the acid.

ANODYNES.

479. Anodynes are those medicines which relieve pain by blunting the sensibility of the nerves, or of the brain, so that it does not appreciate the morbid sensation. An Anodyne may prove to be a stimulant in one dose, and a narcotic in a larger one. The properties of different anodyne agents vary, consequently they produce unlike effects. The size of the dose required, differs according to circumstances and condition. Children can safely take only minute doses. Their nervous system is remarkably susceptible to the action of this class of medicines. An adult, suffering acute pain, requires a much larger dose to produce an anodyne effect, than one who is a chronic sufferer. An individual accustomed to the use of Anodynes, requires a much larger dose to procure relief, than one who is not. Doses may be repeated, until their characteristic effects are produced, after an interval of thirty or forty minutes. When the stomach is very sensitive and will not tolerate their internal administration, one-sixth of a grain of Morphia can be inserted beneath the skin, by means of a hypodermic syringe. Relief is more quickly experienced, and the anodyne effect is much more lasting, than when taken into the stomach.

480. **Opium** (*Papaver Somniferum*). Opium is a stimulant, anodyne and narcotic, according to the size of the dose administered. *Dose*—Of the dry powder, one-fourth, one-half, to one grain; tincture (Laudanum), five to fifteen drops; camphorated tincture (Paregoric), one-half to one teaspoonful;

Morphine, one-eighth to one-fourth grain; Dover's Powder, three to five grains.

481. **Hyoscyamus** (*Hyoscyamus Niger*). Herb. Henbane is a powerful narcotic, and, unlike Opium, does not constipate the bowels, but possesses a laxative tendency. Therefore it may be employed as an anodyne in allaying pain, calming the mind, inducing sleep and arresting spasms, when opiates are inadmissible. *Dose*—Alcoholic extract, one-half to two grains; fluid extract, five to ten drops; concentrated principle—Hyoscyamin—one-twelfth to one-fourth of a grain.

482. **Poison Hemlock** (*Conium Maculatum*). The leaves. Poison Parsley as it is known to some, is an anodyne,

Fig. 116.



Poison Hemlock.

narcotic and excellent alterative. *Dose*—Of fluid extract, two to six drops; solid extract, one-fourth to one-half grain.

483. **Belladonna** (*Atropa Belladonna*). The herb or leaves. The Deadly Nightshade is a valuable, though in large doses, a powerful agent. In overdoses, it is an energetic, narcotic poison. In medicinal doses, it is anodyne, antispasmodic, diaphoretic and diuretic. Excellent in neuralgia, epilepsy, mania, amaurosis, whooping-cough, stricture, rigidity of the os uteri, and is a prophylactic (preventive) of Scarlet Fever. Its influence upon the nervous centers is remarkable, relaxing the blood vessels on the surface of the body and inducing capillary congestion, redness of the eye, scarlet appearance of the face, tongue and body. *Dose*—Fluid extract, one-half to one drop; tincture, one to two drops; concentrated principle—Atropin—one-thirtieth to one-sixteenth of a grain; *Alkaloid Atropia*, one-sixtieth of a grain. Even the most skillful chemists are very cautious in compounding these latter active principles, and the liability to an overdose is great.

484. **Camphor**. This drug is anodyne, stimulant, diaphoretic, and in large doses, narcotic and irritant. This valuable domestic remedy enters into the diaphoretic powders of the Eclectics, which are very serviceable for anodyne purposes. It is an excellent stimulant for liniments. *Dose*—Of the powder one to five grains; tincture, ten to twenty drops, in simple syrup.

485. **Hops** (*Humulus Lupulus*). This is an excellent remedy in wakefulness, and may be used when opium is contra-indicated. A bag of the leaves, moistened with whisky and placed as a pillow under the head, acts as an anodyne. *Dose*—Drink freely of an infusion of the leaves; fluid extract, one-fourth to three-fourths of a teaspoonful; concentrated principle—Lupulin—one to three grains.

486. **Dr. Pierce's Compound Extract of Smart-Weed**. This anodyne compound is made by uniting several of the most valuable agents of this class, and its medicinal qualities are rendered still more efficacious by the addition of certain stimulating articles. It is free from narcotic properties, which are liable to produce deleterious results, and will be found to be not only harmless in its action, but very genial and effectual withal and most reliable as a stimulant and diaphoretic remedy.

ANTHELMINTICS.

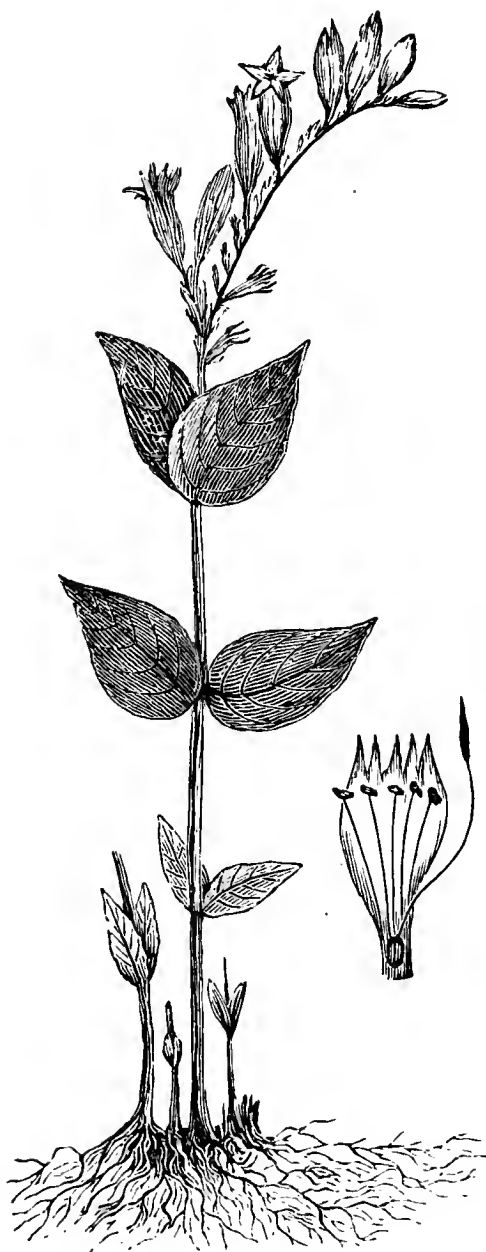
487. Anthelmintic means "against" a "worm," and is a word employed to designate those medicines that destroy or expel worms. It means the same as *Vermifuge*. Little is understood concerning the origin of worms, but there are five distinct varieties described by authors, as being more common than others. There is the long worm, the short, or pin-worm, the thread-worm, the tape-worm and the broad tape-worm peculiar to some of the old countries. Irritation of the alimentary canal from whatever cause, usually produces an abundant secretion of mucus, which is thought to be a condition favorable to their production. Therefore, those medicines which remove the cause of this irritation tend to diminish the number, if not entirely destroy the worms. Some medicines kill the worms, others expel them alive. The remedies that successfully remove one kind of worm, have little effect upon another, and to meet these different conditions, we have a variety of worm-destroying medicines. The pin-worm inhabits the rectum, and may be destroyed by injecting into it a strong solution of salt, and when it is allowed to pass away, the rectum should be anointed with butter or lard. The eggs of this worm are developed around the orifice of the large intestine, and when this latter precaution is not practiced every time there is a passage from the bowels, they will multiply as rapidly as they can be destroyed. Generally, vermifuge remedies should be taken when the stomach is empty, and should be followed by the use of a cathartic in two hours after the last dose is administered.

488. **Santonin.** This is decidedly the most reliable anthelmintic known to the medical profession. It is deservedly a popular remedy for worms, and when combined with Podophyllin, is very efficacious in removing the pin-worm. *Dose*—For an adult, two to three grains of the powdered Santonin, repeated every three hours until four or five doses are taken, when it may be followed by a cathartic.

489. **Sage** (*Salvia Officinalis*). Sage is a common and excellent domestic remedy for worms. Make an infusion of Sage and Senna leaves, and drink freely until it acts as a cathartic.

490. **Pink-Root** (*Spigelia Marilandica*). Pink-Root is

Fig. 117.



Pink-Root.

one of the most active and certain anthelmintics for children. It is a native of the United States. When taken in too large quantities, it is apt to purge, give rise to vertigo, dimness of vision and even convulsions. Therefore it should be combined with some cathartic. *Dose*—Of the infusion, one ounce at night, and follow with physic in the morning.

491. **Common Salt** (*Chloride of Sodium*). Common table salt is an anthelmintic, and may be used in an emergency. Salt water is a very common domestic remedy for worms. *Dose*—In solution, one-quarter to one-half teaspoonful.

492. **Balmony** (*Chelone Glabra*). This is another tonic and anthelmintic, which is good in debility, dyspepsia, jaundice and hepatic affections. It is known as Snake-Head. *Dose*—Of the infusion, one to two ounces; the concentrated principle—Chelonin—from half to one grain.

493. **Male Fern** (*Aspidium Filix Mas*). Male Fern is an anthelmintic, but is considered most effectual in removing the tape-worm. *Dose*—Of the powder, one to two drachms, given morning and evening in syrup, followed by a brisk cathartic.

Tincture, the buds in ether, and a dose of the tincture is eight to thirty drops.

494. **Poplar** (*Populus Tremuloides*). The White or Aspen Poplar is a common tree and contains *Populin* and

Fig. 118.



Aspen.

Salicin, both tonic principles. An infusion of the bark is a remedy for worms. Use freely a tea of the bark. *Dose*—Of *Populin*, from one-half to two grains.

ANTIPERIODICS.

495. It is well understood that malarial diseases observe a periodicity which at once indicates their nature. Antiperiodics prevent the stated recurrence of these morbid manifestations, and hence their name.

496. **Quinine** (*Sulphate of Quinia*). Quinine is tonic, febrifuge, and antiperiodic. It should be administered during the remission of febrile paroxysms. Beneficial also in all diseases of debility. *Dose*—Varies from one to six grains, according to indications. Many times it is given in much larger doses; but I cannot advise such for domestic use.

497. **Prussian Blue** (*Ferri Ferrocyanuretum*). Ferrocyanide of Iron is an excellent tonic and antiperiodic remedy, and oftentimes is combined with quinine. *Dose*—From two to five grains.

498. **Boneset** (*Eupatorium Perfoliatum*). Thoroughwort is tonic, diaphoretic, aperient, and possesses some antiperiodic

Fig. 119.



Boneset.

properties; the warm infusion is emetic. *Dose*—Of the infusion, one to four ounces; fluid extract, from half to one teaspoonful; of the active principle—Eupatorin—one to three grains.

499. **My Golden Medical Discovery** has gained an enviable reputation in malarial districts for the cure of ague. From observing its action in the cure of this and other miasmatic diseases, and knowing its composition, I am thoroughly satisfied that it contains chemical properties which neutralize and destroy the miasmatic or ague poison that is in the system, and at the same time produces a rapid excretion of the neutralized poisons. One strong proof of this is found in the fact that persons who are cured with it are not so liable to relapse as those on whom the chills are broken with Quinia or other agents.

No bad effects are felt after an attack of ague when cured with the Discovery. This cannot be said of Quinia, Peruvian Bark, Arsenic and Mercurials, which comprise nearly the whole list of remedies usually resorted to by physicians for arresting ague. The Golden Medical Discovery not only has the merit of being a positive antidote for miasmatic diseases, but is pleasant to the taste, a matter of no small importance, especially when administered to children. To break the chills, the Discovery should be taken in doses of four teaspoonfuls three times a day, and if this treatment, pursued for three days, does not entirely arrest the chills, these doses may be repeated six times a day for the three succeeding days. *But in no case* should more than this amount be given, and if the chills are not broken up, its use should then be discontinued for three days, when it may be commenced again and the same course pursued as before.

ANTISEPTICS AND DISINFECTANTS.

500. Antiseptics *prevent*, while disinfectants *arrest*, putrefaction. Oxygen is a natural disinfectant, but a powerful inciter of change. Although this element is the cause of animal and vegetable decay, yet this oxidation (eremacausis), is the grand process by which the earth, air and sea are purified. A few substances are both antiseptic and disinfectant, *e. g.*, heat, up to a temperature of 140° F. promotes putrescence, but above that point, is a drier or disorganizer, and destroys the source of infection.

501. **Yeast** (*Cerevisiæ Fermentum*). Yeast is an antiseptic and is effective in all diseases in which there is a threatened putridity. Used externally, it is often combined with elm bark and charcoal, and applied to ulcers, in which there is a tendency to gangrene. *Dose*—One to four tablespoonfuls once in two or three hours.

502. **Creosote** (*Flesh Preserver*), is a powerful antiseptic. It is used in a solution of glycerine, oil, water or syrup. *Dose*—One to two drops, largely diluted.

503. **Carbolic Acid** is a crystalline substance resembling creosote. It is an antiseptic, and is used both internally and externally. *Dose*—One-fourth to one-half drop of the melted crystals, very largely diluted. Externally, in solution, one to five grains of the crystals to one ounce of the solvent.

504. **White Vitriol** (*Zinci Sulphas*). White vitriol is a valuable disinfectant, as it will arrest mortification. In solution it is employed in ulcers and cancers and also as a gargle in putrid sore throat. *Dose*—One-half to two grains in a pill; solution, one to ten grains in an ounce of water.

505. **Permanganate of Potash** (*Potassæ Permannan*). This substance is an energetic deodorizer and disinfectant. A solution containing from one to twenty grains to an ounce of water is used as a lotion for foul ulcers. *Dose*—One-eighth to one-fourth of a grain.

506. **Wild Indigo** (*Baptisia Tinctoria*). The root. This possesses valuable antiseptic properties. It is an excellent lotion for ill-conditioned ulcers, malignant sore throat, syphilitic ophthalmia, etc. It is administered in scarlet and typhus fever, and in all diseases where there is a tendency to putrescence. *Dose*—Of the infusion, one-fourth to one-half ounce; of the fluid extract, from three to ten drops, and of *Baptisin*, (the concentrated active principle of the plant), from one to two grains.

ANTISPASMODICS.

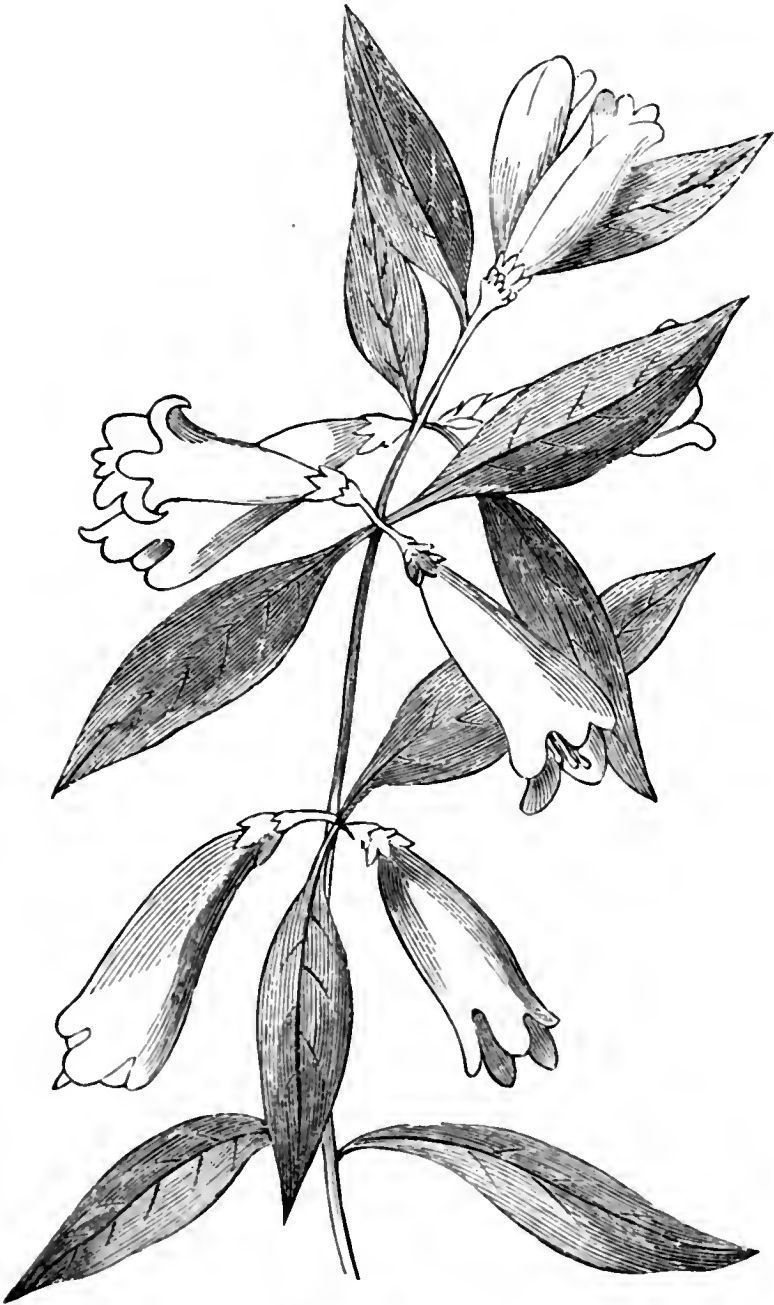
507. Antispasmodics are a class of remedies which relieve cramps, convulsions, spasms, etc., and are closely allied to nervines. Indeed some authors do not recognize their relative difference; yet all antispasmodics are not nervines, and *vice versa*. The following are a few of the most important antispasmodics:

508. **Assafetida** (*Assafetida Ferula*). This is a powerful antispasmodic. It is employed in hysteria, hypochondria, convulsions and spasms, when unaccompanied by inflammation. *Dose*—Of the gum or powder, from three to ten grains, usually administered in the form of a pill; tincture, from one-half to one teaspoonful.

509. **Valerian** (*Valeriana Officinalis*). The root. Valerian is an effective remedy in cases of irregular nervous action and restlessness. *Dose*—Infusion, (one-half ounce to a pint of water) one-half ounce; tincture, one-half to two tablespoonfuls; ammoniated tincture of valerian, from one-half to two teaspoonfuls in sweetened water or milk; valerianate of ammonia, one-half to three grains.

510. **Yellow Jessamine** (*Gelsemium Sempervirens*).
The root. This is a valuable remedy when the disease is asso-

Fig. 120.



Yellow Jessamine.

ciated with restlessness and a determination of the blood to the brain. *Dose*—Fluid extract, three to eight drops; of the

concentrated principle—Gelsemin—one-fourth to one grain. The use of this drug by non-professional persons should be attended with great caution.

511. **Yellow Lady's Slipper** (*Cypripedium Pubescens*). The root. This is a useful remedy in hysteria, chorea, and all cases of nervous irritability. *Dose*—Powder, fifteen to thirty grains; infusion, one ounce; fluid extract, fifteen to thirty drops; concentrated principle—Cypripedin—one-half to two grains.

512. **Wild Yam** (*Dioscorea Villosa*). The root. This is a powerful antispasmodic, and has been successfully used in bilious colic, nausea, and spasm of the bowels. *Dose*—Infusion (two ounces to a pint of water), one to two ounces; fluid extract, five to fifteen drops; concentrated principle—Dioscorein—one-half to one grain.

513. **High Cranberry** (*Viburnum Opulus*). The bark. Also known as Cramp Bark. This is a powerful antispasmodic, and is effective in relaxing spasms of all kinds. It is a valuable agent in arresting threatened abortion. *Dose*—Infusion, one-half to one ounce; fluid extract, one-half to one teaspoonful; concentrated principle—Viburnin—one-half to two grains. These doses may be increased, if necessary.

ASTRINGENTS.

514. Astringents are medicines which condense and coagulate the tissues, thereby arresting discharges. When taken into the mouth, they produce the sensation known as "puckering." They are used internally and locally. The term *styptic*, is used as a synonym of astringent, but is generally employed to designate those astringents which arrest hemorrhage (bleeding).

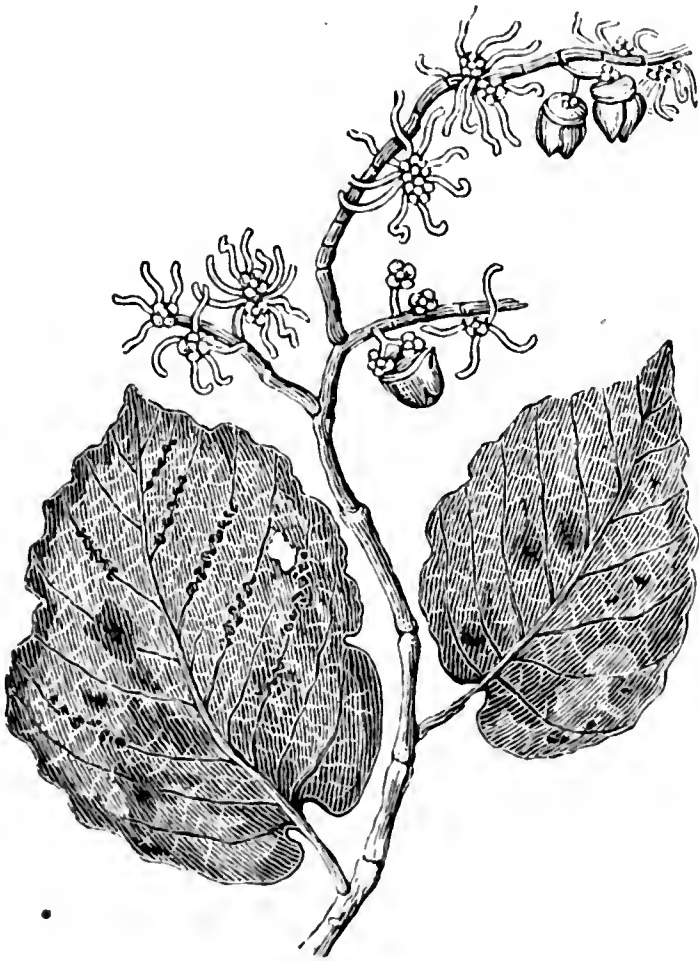
515. **Logwood** (*Hæmatoxylon Campechianum*). Logwood is a mild astringent, well adapted to remedy the relaxed condition of the bowels after cholera infantum. *Dose*—Powdered extract, five to ten grains; decoction, one ounce; fluid extract, fifteen to thirty drops.

516. **Blackberry Root** (*Rubus Villosus*). This astringent is a favorite domestic remedy in bowel affections. *Dose*—Infusion (bruised root), one-half to one ounce, sweetened.

517. **Catechu** (*Acacia Catechu*). A tincture of this plant is a pure, powerful astringent, and is especially useful in chronic diarrhœa, chronic catarrh, and chronic dysentery. *Dose*—Powder, five to twenty grains; tincture, one-half to two teaspoonfuls.

518. **Witch-Hazel** (*Hamamelis Virginica*). Parts used are the leaves and bark. This is a most valuable astringent and

Fig. 121.

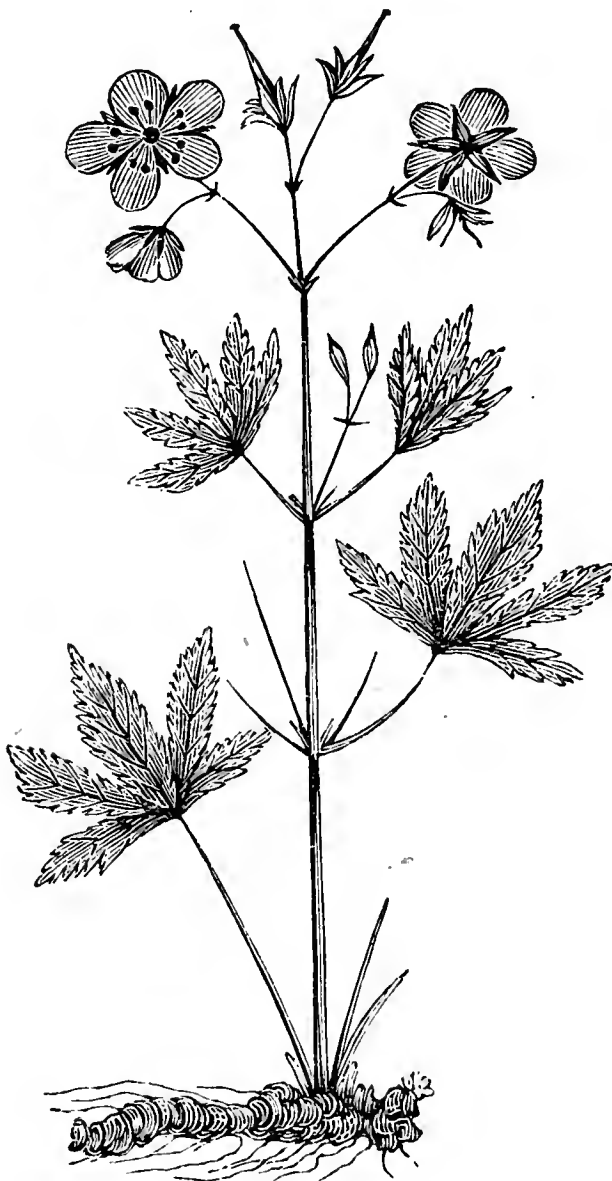


Witch-Hazel.

exerts a specific action upon the nervous system. It arrests many forms of uterine hemorrhage with great promptness, is a valuable agent in the treatment of piles, and useful in many forms of chronic throat and bronchial affections. *Dose*—Infusion, one-fourth to one-half ounce; fluid extract, eight to fifteen drops; Hamamelin—concentrated principle—one-fourth to one grain.

519. **Cranesbill** (*Geranium Maculatum*). The root. This plant is also known as Crow-Foot, Spotted Geranium, etc., etc. It is a pleasant, yet powerful, astringent. Dose—Fluid

Fig. 122



Cranesbill.

extract, ten to thirty drops; concentrated principle — Geranin — one to two grains.

520. **Hardhack** (*Spirea Tomentosa*). Spirea, or Meadow Sweet. The herb. It is a tonic and astringent, used in diarrhœa and cholera-infantum. *Dose*—Infusion, one-half to one ounce; fluid extract, three to six drops.

Fig. 123.



Hardhack.

Fig. 124.



Bugle-Weed.

521. **Bugle-Weed** (*Lycopus Virginicus*). The plant. This is variously known as Water-Hoarhound and Water-Bugle, and is sedative and tonic, as well as astringent. It is employed in hemorrhages and in incipient phthisis. *Dose*—Infusion, one to two ounces; fluid extract, fifteen to twenty-five drops; concentrated principle—Lycopin—one-half to one grain.

522. **Canada Fleabane** (*Erigeron Canadense*). The leaves and flowers. This plant, variously known as Colts-Tail,

Fig. 125.



Canada Fleabane.

Pride-Weed, Butter-Weed, etc., is astringent, and has been efficiently employed in uterine hemorrhages. *Dose*—Infusion (two ounces of the herb to one pint of water), one to two ounces; oil, five to ten drops on sugar, repeated at intervals of from one to four hours.

523. **Tannin** (*Acidum Tannicum*). This acid has a wide range of application. It is used as an astringent. *Dose*—One to five grains.

524. **Gallic Acid** (*Acidum Gallicum*). This remedy is used in uterine hemorrhages, kidney affections, etc. *Dose*—Three to five grains. In acute hemorrhages, this quantity should be administered every half hour, until the bleeding is checked.

CARMINATIVES.

525. Carminatives are medicines which allay intestinal pain, expel wind from the stomach and bowels, and arrest or prevent griping caused by cathartics. They are aromatic, and, to a certain extent, stimulant.

526. **Anise-Seed** (*Pimpinella Anisum*). Anise is a pleasant aromatic carminative, and is used in flatulent colic, etc. *Dose*—Powdered seed, ten to fifteen grains; infusion (a teaspoonful of seed to a gill of water), sweetened, may be given freely; oil, five to ten drops on sugar.

527. **Fennel-Seed**. This is one of our most grateful aromatics, and is sometimes employed to modify the action of senna and rhubarb. *Dose*—Same as anise.

528. **Ginger** (*Zingiber Officinale*). Root. This is a grateful stimulant and carminative. *Dose*—Powder, ten to twenty grains; infusion, one teaspoonful to a gill of water; tincture, twenty to thirty drops; essence, ten to fifteen drops; syrup, one teaspoonful.

529. **Wintergreen** (*Gaultheria Procumbens*). The leaves. This plant possesses stimulant, aromatic and astringent properties. The essence of Wintergreen is carminative, and used in colics. *Dose*—Essence, one-half to one teaspoonful in sweetened water; oil, three to five drops on sugar.

530. **Peppermint** (*Mentha Piperita*). The herb. Peppermint is a powerful stimulant, carminative and antispasmodic. It is used in the treatment of spasms, colic and hysteria. *Dose*—Infusion, may be used freely; essence, fifteen to thirty drops in sweetened warm water; oil, one to five drops on sugar.

531. **Spearmint** (*Mentha Viridis*). The herb. The carminative properties of Spearmint are inferior to Peppermint, and

its chief employment is for its diuretic and febrifuge virtues.
Dose—Same as that of Peppermint.

532. **Compound Extract of Smart-Weed.** My Extract of Smart-Weed is a valuable carminative and aromatic stimulant, and has been employed with marked success in all diseases in which this class of remedies is required.

CATHARTICS.

533. *Cathartics*, or *Purgatives*, are medicines which act upon the bowels and increase the secretions and evacuations. In many parts of the country, these agents are known as “purgés,” or “physics.” They have been variously divided and sub-divided, usually with reference to the energy of their operations or the character of the evacuations produced.

Laxatives, or *Aperients*, are mild cathartics. Purgatives act with more energy and produce several discharges of a more liquid character than the former.

Drastics are those cathartics which produce numerous evacuations accompanied by more or less intestinal irritation.

Hydragogues are those purgatives which act more powerfully than either of the others, and produce watery discharges.

Cholagogues are those which act upon the liver, stimulating its functions. Cathartics constitute a class of remedies which are almost universally employed by families and physicians.

534. **Jalap** (*Ipomœa Jalapa*). The root. It is a drastic and even a hydragogue cathartic. Formerly it was combined with equal parts of calomel. From this fact it received the name of “ten and ten.” *Dose*—Powder, five to fifteen grains; fluid extract, ten to fifteen drops; solid extract, two to four grains; concentrated principle—Jalapin—one-half to two grains.

535. **Gamboge** (*Gambogia*). A gum. Gamboge is a powerful drastic, hydragogue cathartic, which is apt to produce nausea and vomiting. It is employed in dropsy. It should never be given alone, but combined with milder cathartics. It accelerates their action while they moderate its violence. *Dose*—Powder, one-half to two grains. This substance combined with aloes and sometimes with scammony, constitutes the basis of the numerous varieties of large cathartic pills found in the market.

536. **Culver's-Root** (*Leptandra Virginica*). The root.

Fig. 126.



Culver's-Root.

This plant, known under the various names of Culver's Physic, Black-Root, Tall Speedwell, Indian Physic, is a certain cholagogue, laxative and cathartic. *Dose*—Of decoction, one to two fluid ounces; of fluid extract, ten to twenty drops; of tincture, twenty to thirty drops; of the concentrated active principle—Leptandrin—which is but feebly cathartic, as a laxative, two to five grains.

537. **Rhubarb** (*Rheum Palmatum*). This is much used as a domestic remedy, and by the profession, for its laxative, tonic and astringent effects. It is used in bowel complaints. *Dose*—Of the powder, ten to thirty grains; tincture, one-half to two teaspoonfuls; fluid extract, ten to thirty drops; solid extract, three to five grains; syrup, and aromatic syrup, an excellent remedy for children, one-half to one teaspoonful.

538. **Castor Oil** (*Oleum Ricini*). *Dose*—From one to four teaspoonfuls. It may be disguised by rubbing it with an equal quantity of glycerine and adding one or two drops of oil of cinnamon or wintergreen.

539. **Butternut** (*Juglans Cinerea*). The bark. Butternut is a mild cathartic, which resembles rhubarb in its property of evacuating the bowels without irritating the alimentary canal. *Dose*—Extract, as a cathartic, five to ten grains; fluid extract, one-half to one teaspoonful; concentrated principle—Jug-

landin—one to three grains. As a laxative, one-half of these quantities is sufficient.

540. **Aloes** (*Aloe*). The gum. This cathartic acts upon

the lower part of the bowels and sometimes causes piles. Though some late authors claim that in small doses it is a valuable remedy for piles. *Dose*—Powder or pill, three to ten grains; as a laxative, one to three grains.

541. **Epsom Salts** (*Magnesia Sulphas*). Common name, "Salts." Much used in domestic practice. *Dose*—One-fourth to one-half ounce.

542. **Dr. Pierce's Pleasant Purgative Pellets** are so compounded from concentrated active principles, extracted from cathartic roots and herbs, as to combine in a small granule, *scarcely larger than a mustard seed*, as much cathartic power as is embodied in any larger pill found for sale in the drug stores. They are not only pleasant to take, but their operation is easy, producing no griping pain or other unpleasant effect. From their wonderful cathartic power in proportion to their size, people who have not tried them are apt to suppose that they are harsh or drastic in effect, but such is not at all the case; the different active medicinal principles of which they are composed are so harmonized and modified by one another, as to produce a most searching and thorough, yet gently and kindly operating cathartic.

I have offered a standing reward to any chemist who, upon analysis, will find in them any calomel or other form of mercury, or any other mineral poison or injurious drug.

Unlike other cathartics, they do not, after their operation, have a secondary tendency to render the bowels more costive. This is an important improvement. Every one who has ever taken pills or other cathartics for the purpose of overcoming constipation, knows, to his sorrow, that the secondary effect of all such medicines has been "to render a bad matter worse." These Pellets, unlike every other cathartic, produce such a secondary tonic effect upon the bowels as to bring about a permanently healthy action and increase their peristaltic motions. Hence their great value, perseveringly taken in small doses daily, in habitual constipation and in piles, attended and caused as they generally are, by torpor of the liver and costiveness. They act powerfully in arousing all the secretions, especially of the liver, relieving congestion or inflammation, and producing upon that organ, as well as upon the bowels, a secondary

tonic and hence permanently beneficial effect. Being entirely vegetable, no particular care is required while using them. They operate without disturbance to the constitution, diet or occupation. Age does not impair them, as they are so prepared as to readily dissolve in the stomach, while their sugar coating and being inclosed in glass bottles preserve their virtues for any length of time in any climate, so that they are always fresh and reliable. This is not the case with the pills found in the drug stores, put up in wood or paste-board boxes that allow them to dry and harden until they are nearly, if not quite, insoluble in the stomach, or else have lost most of their virtues by long exposure to the atmosphere. No pains or expense will ever be spared to make the Pellets perfect and keep up their high standard of excellence.

543. *Dose*—For a thorough cathartic, take from four to six, determining size of dose, or number of pellets, from the susceptibility of the system to the effects of cathartic medicines. If for a child, administer from one to three or four, according to age. Evening is the best time for taking them, as they do not operate by irritating the stomach and bowels, thus rushing through at railroad speed, but will take twelve, and, in rare cases, twenty-four hours in which to move the bowels, which they accomplish in a *physiological manner*, by being dissolved in the stomach and absorbed directly into the blood, when they stimulate a flow of bile from the liver, and arouse all the glandular secretions, which, being poured into the bowels, constitute their *natural physie*. In this way the blood itself, as well as the stomach and bowels, is purged and cleansed of its impurities, they being carried off in the bile and other secretions. It is a great mistake to suppose that all medicines that purge, act in the same manner and do the same amount of good. All cathartics that operate *speedily*, produce an irritation of the stomach and bowels, causing a flow of water and mucus into them, and running off from the bowels in watery discharges. They never enter the circulation, never act upon the liver, do not arouse the secretions or purify the blood, but tend only to shock, and thus debilitate the system, and the patient soon finds the function of the bowels destroyed, and constipation resulting as the secondary effect of the irritation and overexcitement thus produced. Hence, Jalap

and Senna, Aloes, Scammony, Castor Oil, Croton Oil, Gamboge, Elaterium or Epsom Salts, should not be taken with the idea that any good effect is going to be produced upon the blood, liver or other glands, as their mode of operating precludes such an effect.

My Purgative Pellets, on the other hand, act upon the bowels, *only* by taking time to enter the blood, arouse the secretions, and letting these secretions, which are nature's physic, move the bowels. Hence, when the bowels are moved after a dose of my Pellets, we may *positively know* that the liver and other glands have been aroused to action; and this belief will be confirmed by the laxative effect of the secretions after the operation of the cathartic, which can be best appreciated by those who suffer from constipation or piles, and have been used to taking other cathartics.

After taking a cathartic dose of Pellets, if you desire to increase their purgative action, eat plentifully of common salt. The salt is also a good remedy for any slight nausea, griping, or other disagreeable symptoms, that are sometimes, yet *very rarely*, produced, not by the Pellets, for they are not irritating or harsh, but by the acrid and irritating character of the morbid matters dislodged by them. No such disagreeable symptoms will arise after taking my Pellets, unless the system is *very* foul, torpid and obstructed, as they are so compounded as to guard against all such unpleasant effects.

The greatest benefit is derived in all bilious derangements, not by strong cathartic doses, but by small *alterative* ones, continued for several days, say one to three Pellets a day, or just enough to keep the bowels slightly relaxed.

As an appetizer or promoter of digestion, take one or two after dinner.

In all chronic or lingering diseases, it is of the utmost importance to keep the bowels *regular*, yet thorough purgation should be avoided, as it tends to debilitate the system by the shock which is thus produced.

Small laxative doses, by their mild but continuous tonic and alterative action, taken daily and continued for a long time, is the plan that I would recommend as calculated to produce the most sanative results.

CAUSTICS.

544. *Caustics* are substances that have the power of destroying or disorganizing animal structures. By their action they destroy the tissue to which they are applied and form a crust, which is thrown off by a separation from the parts beneath. Their caustic property may be destroyed by dilution with other substances, to such an extent that they will only irritate or stimulate, and not destroy. Much care is necessary in their employment, and it is not expected that the non-professional reader will have much to do with them; hence I have thought it best to omit giving a list of these agents.

COUNTER-IRRITANTS.

545. *Counter-irritants* are substances that produce irritation of the part to which they are applied, varying in degree from a slight redness to a blister or pustule. They are applied to the surface with a view to produce an irritation there, which will relieve irritation or inflammation in some other or deeper seated part. They are a class of agents that I very seldom employ, and hence shall notice only a couple of the simplest ones.

546. **Mustard** (*Sinapis*). The flour of Mustard, best adapted for domestic use, is employed, made into a paste, spread on cloth, and applied. It takes effect in a few moments; the length of time it remains in contact with the skin determines the effect produced.

547. **Horse-Radish** (*Cochlearia Armoracia*). The leaves are the parts used. Wilt and bind them on the part. They act about as energetically as mustard.

DIAPHORETICS.

548. *Diaphoretics* are medicines which promote perspiration. Those which occasion profuse sweating are termed *Sudorifics*. The two terms indicate different degrees of the same operation. They constitute an important element in domestic practice, on account of the salutary effects that generally follow their action. Their operation is favored by warmth externally, and warm drinks, when they are not given in hot infusion.

549. **Catnip** (*Nepeta Cataria*). A deservedly popular domestic remedy, always acceptable, and certain in its action. The warm infusion is the preferable form of administration. *Dose*—May be drank freely.

550. **Pleurisy-Root** (*Asclepias Tuberosa*). Also known as White-Root, Butterfly-Weed, etc. It is a valuable remedy,

Fig. 127.



Pleurisy-Root.

well adapted to break up inflammations and diseases of the chest. *Dose*—Of infusion, one to two ounces; fluid extract, one-fourth to one-half teaspoonful; of the concentrated principle—Asclepin one to three grains.

551. **Saffron** (*Crocus Sativus*). Golden Saffron. *Dose*—Of infusion (one drachm to a pint of water), one to two ounces.

552. **Sage** (*Salvia Officinalis*). The warm infusion drank freely is a valuable domestic diaphoretic.

553. **Virginia Snake-Root** (*Aristolochia Serpentaria*). An efficient agent. Dose—Infusion, one to two ounces;

Fig. 128.



Virginia Snake-Root.

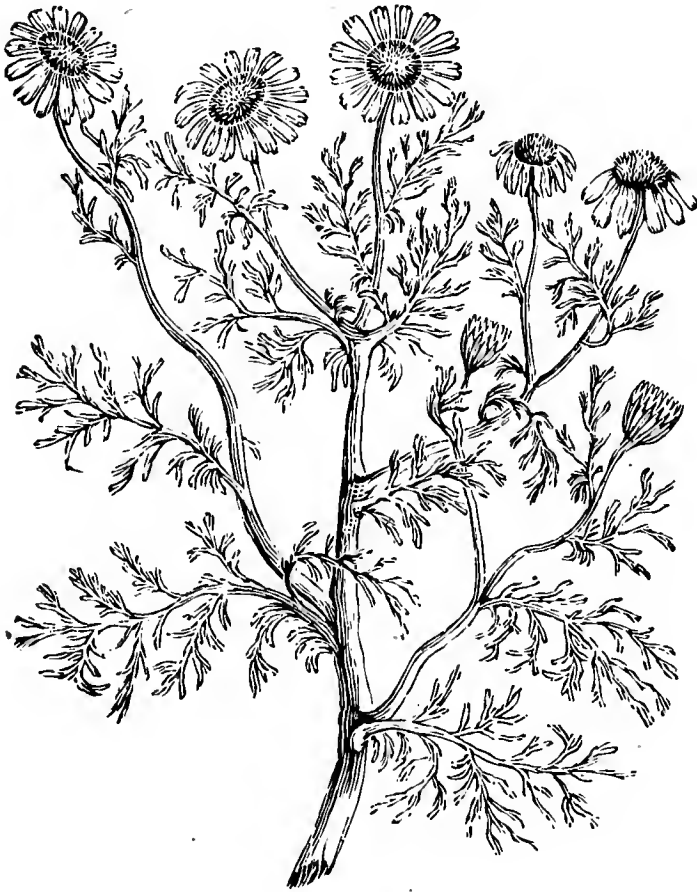
tincture, one-fourth to one teaspoonful; fluid extract, one-fourth to one-half teaspoonful.

554. **Ginger** (*Zingiber Officinale*). The hot infusion may be sweetened and drank as freely as the stomach will bear.

555. **Dr. Pierce's Compound Extract of Smart-Weed.** This is unsurpassed as a diaphoretic agent, and is much more certain in its operation than any simple diaphoretic.

556. **May-Weed** (*Maruta Cotula*). Also known as Wild-

Fig. 129.



May-Flower.

Chamomile, Dog-Fennel, etc. Not much used, though a powerful diaphoretic. *Dose*—Of infusion, one to two ounces.

DILUENTS.

557. Any fluid which thins the blood or holds medicine in solution is called a diluent. Pure water is the principal agent of this class. It constitutes about four-fifths of the weight of the blood and is the principal constituent of the bodily tissues. Water is necessary, not only for digestion, nutrition and all functional processes of life, but it is indispensable as a menstruum for medicinal substances. It is a necessary agent in depuration, or the process of purifying the animal economy, for it dissolves and holds in solution deleterious matter, which in this state may

be expelled from the body. In fevers, water is useful to quench the thirst, promote absorption and incite the skin and kidneys to action. Its temperature may be varied according to requirements. Diluents are the vehicles for introducing medicine into the system. I will briefly mention some which prove to be very grateful to the sick.

Various vegetable acids and jellies may be dissolved in water, as apple, currant, quince, grape or cranberry.

The juice of lemons, oranges, pine-apples and tamarinds is also found to be refreshing to fever patients.

Sassafras-pith, slippery-elm flour, flax-seed and gum arabic make good mucilaginous drinks for soothing irritation of the bowels or other parts.

Brewers' yeast mixed with water in proportion of from one-eighth to one-fourth is a stimulant and antiseptic.

The white ashes of hickory or maple wood make an excellent alkaline drink in fevers, or whenever the system seems surcharged with acidity.

DIURETICS.

558. *Diuretics* are medicines which, by their action on the kidneys, increase the flow of urine.

559. **Queen of the Meadow** (*Eupatorium Purpureum*). Also known as Gravel-Weed, Gravel-Root, Trumpet-Weed, etc. This is a most valuable diuretic. *Dose*—Of the infusion, one to three ounces; fluid extract, one-fourth to one-half teaspoonful; of the concentrated principle—Eupatorin (*Purpu*)—one-half to two grains.

560. **Buchu** (*Diosma Crenata*, *Barosma Crenata*). The leaves. This agent has been extensively employed, generally in compounds. *Dose*—Of infusion, (infused for two hours or more) one to two ounces; fluid extract one-half to one teaspoonful; compound fluid extract, the same; concentrated principle—Barosmin—one to three grains.

561. **Pipsissewa** (*Chimaphila Umbellata*). Prince's Pine. This is a tonic to the kidneys, as well as diuretic and alterative—a mild, but very efficient remedy. *Dose*—Of decoction, one ounce four to six times a day; fluid extract, one-fourth to

one-half teaspoonful; of the concentrated principle—Chimaphilin—one to two grains.

562. **Marsh-Mallow** (*Althea Officinalis*). Used in

Fig. 130.



Marsh-Mallow.

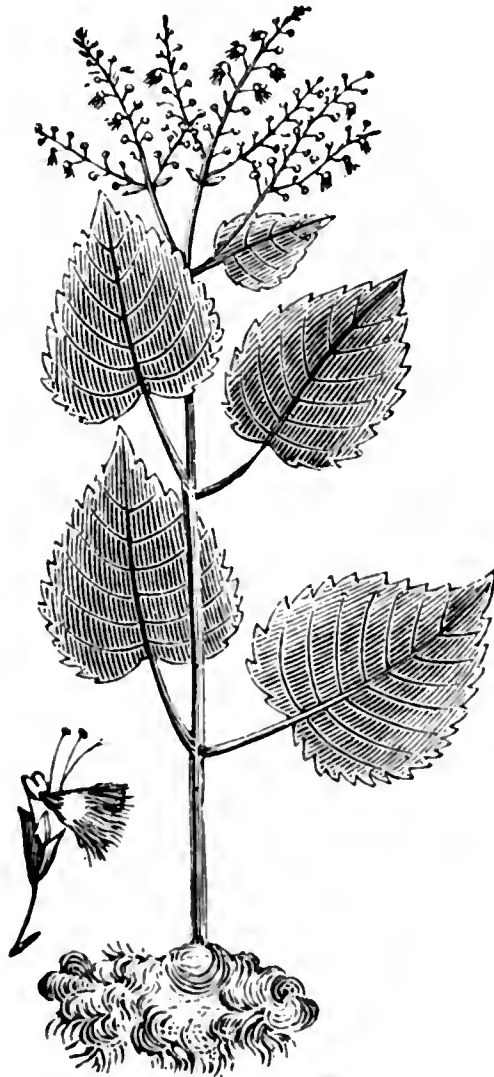
irritable conditions of the urinary organs. *Dose*—Infusion may be drank freely.

563. **Gravel-Plant** (*Epigea Repens*). Also known as Winter-Pink, Trailing-Arbutus, Gravel-Root. The plant. *Dose*—Of decoction, one to three ounces; fluid extract, one-fourth to one-half teaspoonful.

564. **Water-Melon Seeds** (*Cucurbita Citrullus*).
Dose—Of infusion, the patient may drink freely until the desired effect is secured.

565. **Stone-Root** (*Collinsonia Canadensis*). Also known as Knot-Root, Horse-Balm, Rich-Weed, Ox-Balm, etc. This is a mild diuretic, slow in action, yet effective in allaying irritation

Fig. 131.



Stone-Root.

of the bladder. The root is the part used. *Dose*—Of infusion, one to two ounces; fluid extract, five to ten drops; of the concentrated principle—Collinsonin—one-half to one grain.

566. **Pumpkin Seeds** (*Cucurbita Pepo*). They are mild, unirritating, yet effective diuretics. *Dose*—Infusion of these may be drank freely.

567. **Spirits of Nitre** (*Ætheris Spiritus Nitrici*). Sweet Spirits of Nitre. Diuretic and anodyne. *Dose*—One-fourth to one-half teaspoonful, diluted in water, every two or three hours.

568. **Saltpetre** (*Potassæ Nitrus*). Nitre. *Dose*—Powdered, five to ten grains.

569. **Acetate of Potash** (*Potassæ Acetas*). *Dose*—Ten to fifteen grains, largely diluted in water. More used for this purpose than the nitrate. It is a most valuable diuretic.

EMETICS.

570. These are medicines which cause vomiting and evacuation of the stomach. Many substances not classed as emetics are capable of indirectly causing vomiting. When employed in cases of poisoning, it is desirable to empty the stomach as soon as possible and a full dose should be given at once. In other cases where their constitutional effect is desired, they are best given in small doses, repeated every five to fifteen minutes. Draughts of warm water favor their action.

571. **Ipecac** (*Cephaelis Ipecacuanha*). In large doses Ipecac is emetic. In small doses, it exerts a specific influence upon the mucous membranes, relieves irritation and subdues inflammation. In cholera infantum it is an invaluable remedy; if given in very small doses. By allaying irritation of the stomach and restoring tone and functional activity to it and the bowels, it gradually checks the discharges and brings about a healthy condition. In these cases I add from five to ten drops of the tincture to thirty teaspoonfuls of water, of which the dose is one teaspoonful every hour. As an emetic the dose is: Of powder, five to ten grains in warm water; fluid extract, ten to twenty drops.

572. **Boneset** (*Eupatorium Perfoliatum*). *Dose*—Of the warm infusion or decoction, two to three ounces; fluid extract, one teaspoonful in hot water; concentrated principle—Eupatorin—two to five grains.

573. **Lobelia** (*Lobelia Inflata*). Also known as Indian Tobacco, Emetic-Weed, Asthma-Weed, etc. The herb and seeds.

Fig. 132.



Lobelia.

A powerful emetic, generally given in combination with other agents. *Dose*—Of the powdered leaves, fifteen to twenty grains; of the infusion, one to three ounces; fluid extract, ten to fifteen drops. It is generally given combined with Blood-Root, Ipecac and Skunk-Cabbage, equal parts. *Dose*—Twenty grains in water.

EMMENAGOGUES.

574. Emmenagogue is a term applied to a class of medicines which have the power of favoring the discharge of the menses. I shall mention only a few of those best adapted to domestic use.

575. **Motherwort** (*Leonurus Cardiacæ*). Motherwort is usually given in warm infusion, in suppression of the menses from cold. *Dose*—Of the decoction, from two to three fluid ounces every one or two hours.

576. **Life-Root** (*Senecio Gracilis*). Life-Root exerts a peculiar influence upon the female reproductive organs, and for this reason has received the name of Female Regulator. It is very efficacious in promoting the menstrual flow, and is a valuable agent in the treatment of female diseases. *Dose*—Of the decoction, four fluid ounces three or four times per day; of the fluid extract, from one-fourth to one-half teaspoonful.

577. **Pennyroyal** (*Hedeoma Pulegioides*). Pennyroyal used freely in the form of a warm infusion, will promote perspiration and excite the menstrual discharge when recently checked. *Dose*—A large draught of the infusion should be taken at bed-time. The feet should be bathed in warm water previous to taking the infusion.

Fig. 133.



Pennyroyal.

578. **Black Cohosh** (*Cimicifuga Racemosa*). Black Cohosh, known also as Black Snake-Root, is an effective remedy in uterine difficulties. *Dose*—Tincture, twenty drops; fluid extract, ten drops.

579. **Tansy** (*Tanacetum Vulgare*). Tansy is beneficial in suppressed menstruation. *Dose*—Of the infusion, from one to four fluid ounces.

580. **Dr. Pierce's Favorite Prescription** is an efficient remedy in cases requiring a medicine to regulate the menstrual function. Full directions accompany each bottle.

581. **Dr. Pierce's Compound Extract of Smart-Weed** is an excellent emmenagogue. Dr. Eberle,

a very celebrated medical writer, and author of a work on medicine that is very popular with the profession, says, that he has used the Extract of Smart-Weed in twenty cases of amenorrhœa (suppressed menstruation), and can affirm that "with no other remedy or mode of treatment have I been so successful as with this." Full directions accompany each bottle. It is sold by all druggists.

EXPECTORANTS.

582. Expectorants are medicines that modify the character of the secretions of the bronchial tubes, and promote their discharge. Being nauseants, their prolonged use invariably tends to debilitate the functions of the stomach, thus interfering with digestion and healthy nutrition. They also exert an unfavorable influence upon the pulmonary tissues, by increasing determination of blood to them, keeping up a continued state of excitement and endangering a breaking down of the lung tissues. I long ago abandoned all expectorants in the treatment of consumption, and other chronic diseases of the lungs, considering them productive of more injury than benefit; they are obsolete agents in my practice, hence I shall dismiss them without further consideration.

LINIMENTS.

583. Liniments are medicines designed for external application. The benefits arising from their use depend upon their derivative power, as well as upon the anodyne properties which many of them possess, rendering them efficacious in soothing pain. I cannot mention a more valuable sample of this class of agents than

584. **My Compound Extract of Smart-Weed.** As an external application this preparation subdues inflammation and relieves pain. For all wounds, bruises, sprains, bee stings, insect and snake bites, frost bites, chilblains, caked breast, swollen glands, rheumatism, and, in short, for any and all ailments, whether afflicting man or beast, requiring a direct external application, either to allay inflammation or soothe pain, my Extract of Smart-Weed cannot be excelled.

NARCOTICS.

585. A narcotic is a remedy which, in *medicinal* doses, allays morbid sensibility, relieves pain, and produces sleep; but which, in *overdoses*, produces coma, convulsions and death. The quantity necessary to produce these results varies with different individuals. We shall mention a few of those most generally employed.

586. **Henbane** (*Hyoscyamus Niger*). Leaves and seeds. Henbane, in large doses, is a powerful narcotic and dangerously poisonous. In medicinal doses, it is anodyne and antispasmodic;

Fig. 134.



Henbane.

it allays pain, induces sleep, and arrests spasms. *Dose*—Of the fluid extract, five to ten drops; of the solid extract, from one-half to one grain; of the concentrated principle—Hyoscyamin—from one-twelfth to one-fourth of a grain.

587. **Indian Hemp** (*Cannabis Indica*). East Indian plant. *Dose*—Of the extract, from one-fourth to one-half grain; tincture, from three to eight drops; fluid extract, from two to five drops. The plant known as Indian Hemp, growing in this country, possesses very different qualities.

588. **Stramonium** (*Datura Stramonium*). Stramonium, also known as Thorn-Apple, in large doses is a powerful narcotic

Fig. 135.



Stramonium.

poison. In medicinal doses it acts as an anodyne and antispasmodic. *Dose*—Of extract of leaves, from one-half to one grain; fluid extract, from three to six drops.

NERVINES.

589. These are medicines that act on the nervous system, soothing excitement and quieting the condition known as "nervousness."

590. **Hops** (*Humulus Lupulus*). Dose—Of infusion, one to three ounces; fluid extract, one-fourth to one-half teaspoonful; of the concentrated principle—Lupulin—two to three grains.

591. **Lady's Slipper** (*Cypripedium Pubescens*). The root. Dose—Infusion, one-half to one ounce; fluid extract, one-fourth to one-half teaspoonful; of the concentrated principle—Cypripedin—one to two grains.

592. **Scull-Cap** (*Scutellaria Lateriflora*). The herb. Also known as Mad-Dog Weed, etc. This is a valuable remedy.

Fig. 136



Scull-Cap.

Dose—Of infusion, one to two ounces; fluid extract, ten to twenty drops; concentrated principle—Scutellarin—one to two grains.

593. **Pulsatilla** (*Pulsatilla Nigricans*). I employ the German tincture, prepared according to the Homœopathic pharmacy from the green herb. In many of the distressing nervous symptoms to which both males and females are subject in certain forms of disease of the generative organs, I find it to give prompt relief. I usually direct one drachm of the tincture, to be diluted with four ounces of water, of which the dose is one teaspoonful.

594. **Dr. Pierce's Favorite Prescription.** This is a tonic nervine of unsurpassed efficacy, combined in such a manner, that while it quiets nervous irritation, it strengthens the enfeebled nervous system, restoring it to healthful vigor. In all diseases involving the female reproductive organs, with which there is usually associated an irritable condition of the nervous

system, it is unsurpassed as a remedy. It is also a uterine and general tonic of great excellence. It is sold by all druggists.

SEDATIVES.

595. Sedatives are a class of agents that control excitation of the circulation and morbid irritability of the nervous system.

596. **Aconite** (*Aconitum Napellus*). Part used—root and leaves. Dr. Scudder says: "Aconite is a stimulant to the

Fig. 137.



Aconite.

sympathetic system of nerves, and increases the power of the heart to move the blood, at the same time that it places the blood-vessels in better condition for its passage. To fully indicate the plausibility of this theory, I would call attention to the fact, that the action of the heart and the circulation of the blood, not only in the arteries and veins, but also in the capillaries, is under the control of the sympathetic system of nerves." The same author says: "Aconite, in small doses, lessens the frequency of the pulse, because it removes obstruction to the free flow of blood in the vessels, and gives greater cardiac power. Aconite is indicated, in preference to *Veratrum*, when the pulse is weak, compressible and frequent, indeed whenever there is evidence of great enfeeblement of the circulation." *Veratrum* is especially indicated in preference to *Aconite* whenever the pulse is, not

only frequent, but strong, full, hard or bounding. *Dose*—The tincture or fluid extract may be given in the same manner, and

in the same sized doses as directed for *Veratrum*, with the best results.

597. **American Hellebore** (*Veratrum Viride*). Also known as White Hellebore, Indian Poke, Swamp Hellebore. The

Fig. 138.



American Hellebore.

root is the part used. It is a most valuable agent with which to control the frequent, strong, bounding pulse common to many

febrile and inflammatory diseases. This remedy should be given in very small doses, frequently repeated, if we would secure its best effects. My favorite mode of administering it is to add ten drops of the fluid extract to ten or fifteen teaspoonfuls of water, of which one teaspoonful is administered every hour. The *tincture* may be given in one-half larger doses. In addition to its controlling influence over the circulatory organs, it is one of the most certain alteratives in the *Materia Medica*, but must, to secure this effect, be administered in doses of only one-half to one drop of the fluid extract three or four times a day.

598. **Yellow Jessamine** (*Gelsemium Sempervirens*). The root is the part used. Through its controlling effect over the sympathetic nervous system, this agent exerts a marked influence in controlling morbid excitability of the circulatory organs. It allays irritation, and determination of blood to the brain, marked by flushed face, contracted pupils, irritability and restlessness—a frequent condition in diseases incident to childhood. Its concentrated principle—Gelsemin—is a specific remedy in bloody-flux or dysentery. It must, however, be administered in very small doses, in order to secure the best results. Only one-sixteenth to one-eighth grain is required, to be repeated every two hours. It should be triturated with sugar of milk or with common white sugar, in proportion of one grain to ten of sugar. *Dose*—Of tincture, from five to fifteen drops; of fluid extract, three to six drops; Gelsemin, as a sedative, one-fourth to one-half grain.

599. **Peach Tree** (*Amygdalus Persica*). Peach tree leaves and bark are slightly sedative, but the chief use that I have found for these articles is to control nausea and vomiting arising from irritability of the stomach. For this purpose it surpasses all other remedies with which I am acquainted. It also possesses mild tonic properties. *Dose*—Of infusion of the bark of the small twigs or of the leaves, from two to six teaspoonfuls.

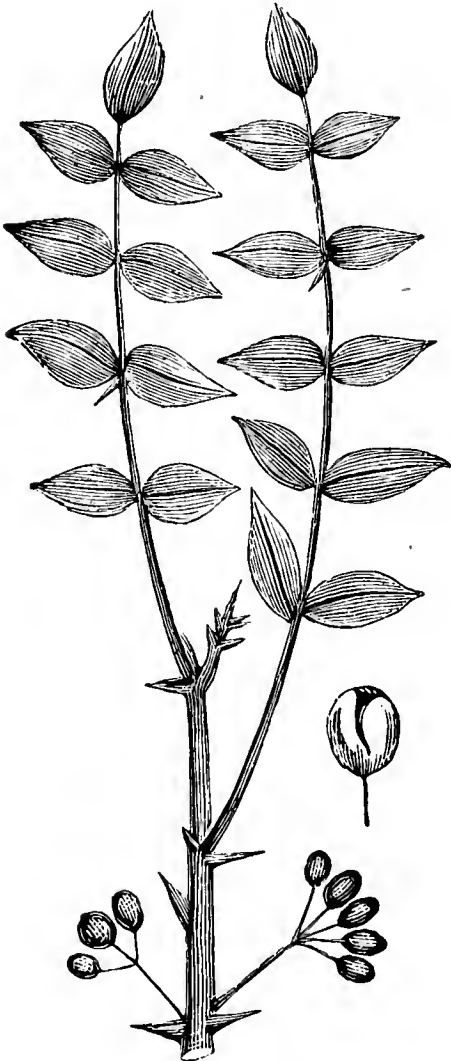
STIMULANTS.

600. Stimulants are medicines which have the power of exciting the organic action of the different systems of the bodily economy. Some have a temporary action, while others are more permanent in effect.

601. **Cayenne Pepper** (*Capsicum Annuum*). Cayenne Pepper is a powerful stimulant. *Dose*—Of the powder, from one to six grains, to be given in milk; of the tincture, from five to ten drops largely diluted in milk or water.

602. **Prickly-Ash** (*Xanthoxylum Fraxineum*). Prickly-Ash bark is a stimulant and tonic. Parts used—bark and leaves.

Fig. 139.



Prickly-Ash.

Dose—Fluid extract, from five to fifteen drops; tincture, ten to twenty drops; of the active principle — Xanthoxylin — one to two grains.

603. **Black Pepper** (*Piper Nigrum*). Black Pepper is a warm carminative stimulant. *Dose*—From five to fifteen grains; fluid extract, from ten to fifteen drops.

604. **Alcohol** is a powerful stimulant. It is never used in its pure state in medicine, but when diluted forms a useful remedy in many diseases. It is generally employed in the form of whisky, gin, rum, brandy and wine.

605. **Ammonia** is largely used as a stimulant. *Dose*—Of the carbonate, from three to five grains; of the sesquicarbonate, from five to ten grains; this is the same as the carbonate, which has been exposed to the air and slacked (powdered hartshorn); of the aromatic spirit, from one-half to one teaspoonful. The Aqua Ammonia and Liquor Ammonia are of such variable strength that they are seldom employed internally, but may be applied externally and to the nostrils.

606. **Dr. Pierce's Compound Extract of Smart-Weed.** This quickly diffusible stimulant and genial anodyne we have spoken of under the head of Anodynes. But its medicinal properties equally entitle it to a place and mention under the class of stimulants. Sometimes the circulation of the blood flags, and, instead of being carried to the surface of the body, it recedes to the bowels, liver or lungs, producing congestion, with a sense of fullness and of pain. A stimulant spurs the nervous energies and arouses the circulatory forces. Congestion of the lungs, liver, bowels or uterus, embarrasses their functions. Oftentimes this congestive difficulty may be entirely obviated, and the circulation of the blood restored to the surface of the body, by a few doses of this pleasant remedy. Thus it may act like magic in giving desired relief, promoting the circulation and restoring the organs to their accustomed functional activity. Full directions accompany each bottle.

TONICS.

607. Tonics are remedies which moderately and permanently exalt the energies of all parts of the body, without causing any deviation of healthy function.

608. **White Poplar** (*Liriodendron Tulipifera*). Called also American Poplar, White Wood, etc. Part used—the inner bark. This is a mild but valuable tonic for domestic use. *Dose*—Of the infusion, from one-half to one ounce; of tincture, from one to two teaspoonfuls.

Fig. 140.



White Poplar.

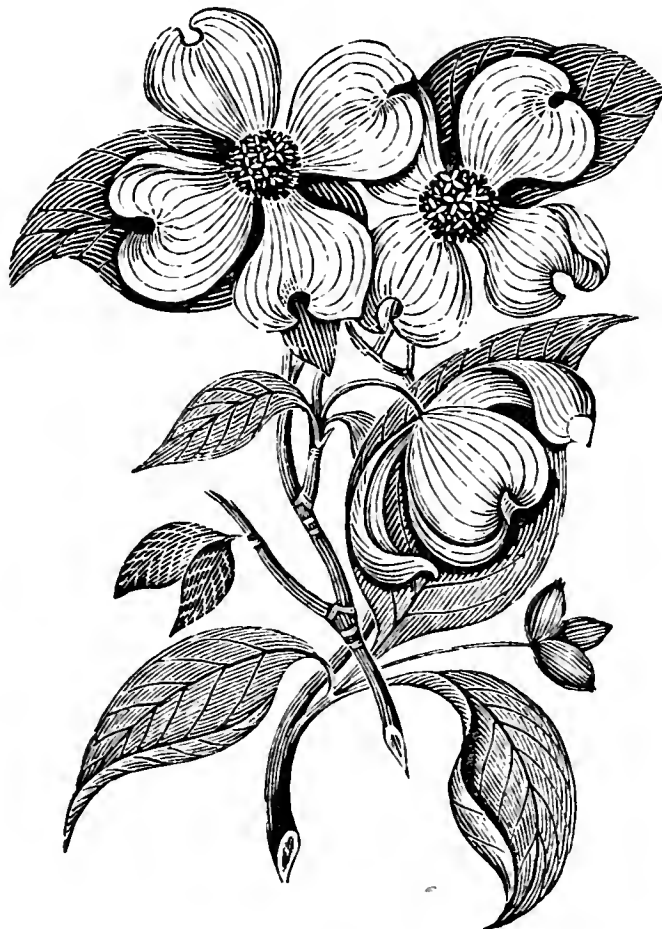
609. **Chamomile** (*Anthemis Nobilis*). Part used—the flowers. This is a mild, unirritating tonic. *Dose*—Of infusion (one-fourth ounce of flowers to a pint of water), one-half to one ounce.

610. **Gentian** (*Gentiana Lutea*). The root. This is a favorite domestic tonic in many sections. *Dose*—Of powdered root, five to ten grains; of the tincture, ten to twenty drops; of the fluid extract, five to ten drops, four or five times

a day; of the active principle—Salicin—from two to four grains, three or four times a day.

611. **Dogwood** (*Cornus Florida*). Dogwood, also known as Boxwood, is tonic, astringent, and slightly stimulant. *Dose*—

Fig. 141.



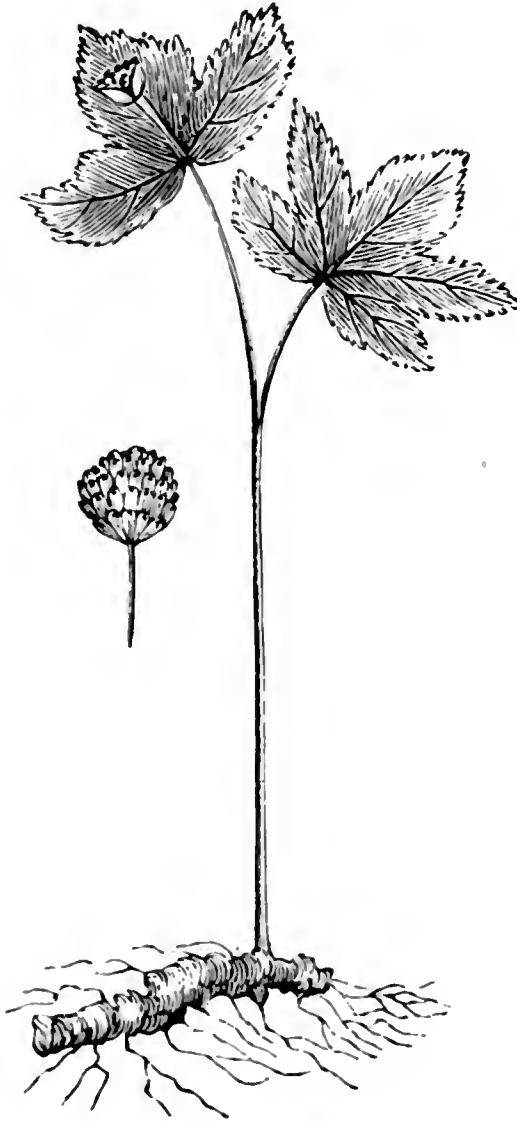
Dogwood.

Of the solid extract, from three to five grains; of the infusion, from one to two ounces; of the fluid extract, from ten to twenty drops.

612. **Nux Vomica** (*Strychnos Nux Vomica*). Dog Button. This is a powerful tonic. It increases innervation and is particularly valuable in cases marked by feeble circulation and general impairment of muscular power. In overdoses it is poisonous, and hence must be employed with much caution. *Dose*—Tincture, three to five drops; fluid extract, one to three drops.

613. **Golden Seal** (*Hydrastis Canadensis*). Golden Seal is a powerful and most valuable tonic. *Dose*—Of the powder,

Fig. 142.



Golden Seal.

from ten to thirty grains; of the tincture, from one-half to one fluid drachm; of the fluid extract, from ten to twenty drops; of the concentrated principle—Hydrastin—from two to three grains; of the muriate of hydrastia, from one-half to one grain.

614. **Willow** (*Salix Alba*). Willow is a tonic and an astringent. *Dose*—Of the decoction, from one to two fluid ounces.

615. **American Colombo** (*Fraseria Carolinensis*).
American Colombo is a simple tonic. *Dose*—Of the powdered

Fig. 143.



American Colombo.

root, from ten to fifteen grains; of the infusion one-half to one fluid ounce, three or four times a day; of the active principle—Fraserin—one to three grains.

616. **Gold Thread** (*Coptis Trifolia*). Gold Thread is a pure and powerful bitter tonic, and is also efficacious as a wash

Fig. 144.



Gold Thread.

for the mouth or a gargle. *Dose*—Of the decoction, from two to six fluid drachms; of the tincture, from one-half to two teaspoonfuls; of fluid extract, from ten to twenty drops.

617. **Wafer-Ash** (*Ptelea Trifoliata*). Also called Swamp Dogwood, etc. The bark. This is a pure, unirritating tonic. *Dose*—Of tincture, one-half to one teaspoonful; of fluid extract, ten to twenty drops; infusion, one to two fluid ounces.

618. **Iron** (*Ferrum*). Different preparations of iron are largely prescribed by physicians, and they have been classed as tonics. They are particularly valuable in anemic (bloodless) conditions of the system. The following are a few of the preparations of this metal most generally used:

Iron by Hydrogen. (*Ferri Redactum*). *Dose*—One to two grains.

Carbonate of Iron. (*Ferri Carbonas*). *Dose*—One to three grains.

Citrate of Iron (*Ferri Citras*). Dose—One to three grains.

Pyrophosphate of Iron (*Ferri Pyrophosphas*). Dose—One to three grains.

Muriated Tincture of Iron (*Tinctura Ferri Chloridi*). Dose—Three to six drops.

619. **Dr. Pierce's Favorite Prescription.** The Favorite Prescription, in addition to those properties already described, likewise combines tonic properties. In consequence of the never ceasing activities of the bodily organs, the system requires support, something to permanently exalt its actions. In all cases of debility, this Favorite Prescription tranquilizes the nerves, tones the organs and increases their vigor, and strengthens the system. Directions for use accompany each bottle.

620. **My Golden Medical Discovery.** In addition to the alterative properties combined in this compound, it possesses important tonic qualities. While the Favorite Prescription exerts a tonic influence upon the digestive and nutritive functions, the Golden Medical Discovery acts upon the emunctories. Besides, it tends to diminish unusual waste and expenditure, by its antiseptic and restraining influences. This latter remedy tones, sustains and at the same time regulates the functions. And while increasing the discharge of noxious elements accumulating in the system, it promptly arrests the wastes arising from debility, and the unusual breaking down of the cells as witnessed in quick decline. Its alterative properties act upon the glands, causing the torpid liver to secrete, changing the sallow complexion and transforming the listless invalid into a vigorous and healthy being. At the same time, it checks the rapid disorganization of the tissues and their putrescent change, while it sustains the vital processes. It is therefore an indispensable remedy in the treatment of many diseases.

CHAPTER III.

WATER AS A REMEDIAL AGENT.

621. The remedial effects of bathing are generally underrated. This non-appreciation is oftener due to the improper manner in which it is performed than to an insufficiency of curative virtues. The term *bathing*, not only implies a cleansing of the body or certain portions of it, but also the application of water in such a manner as to influence the nervous system, and regulate the functions of the secretory organs. Cleanliness, while it preserves health and promotes recovery, considers only the hygienic influences of water, and overlooks its curative effects. There are several kinds of baths, the names of which indicate their character, manner of application, or the part of the body to which they are applied. Among others, we have Cold, Cool, Temperate, Tepid, Warm, Hot, Hot Air, Russian, Turkish, Vapor, Electric, Sea, Shower, Sponge, Douche, Foot, Sitz, Head, Medicated, Alkaline, Acid, Iodine and Sulphur Baths. Temperature influences the properties of any bath; thus the sponge, sitz and alkaline baths may be employed warm or cold, according to the effect desired.

622. **The Cold Bath**, used at a temperature of from 30° to 60° F., is powerfully sedative, and employed for its tonic effects. If the vital powers are low, or the individual remains in it too long (two or three minutes should be the limit), the reaction will be slow and its effects injurious. While it is highly invigorating to robust persons, its employment by those who have a low standard of vitality should be cautious. A local employment may be followed by beneficial results, when its

general application would be inadmissible. For these reasons we advise the general use of the

623. **Cool Bath**, at a temperature of from 60° to 75° F. If, in any instance, the *reaction* is *slow*, we recommend the

624. **Temperate Bath**, at a temperature of from 75° to 80° F. The time of remaining in the bath must be regulated by the strength of the invalid. As a rule it should not exceed three *minutes*, and the colder the water the less time should the patient be immersed. Immediately after emerging from any bath, the body should be thoroughly dried, and rubbed with a moderately coarse towel until a glow is experienced and reaction is fully established. The attempt to toughen children by exposing them to low temperatures of either air or water, cannot be too emphatically condemned. This caution, however, does not apply to the employment of moderately cool water for ablutions. The cold or cool bath should be taken in the early part of the day, but *never during digestion*. Whenever reaction does not follow bathing, artificial means must be resorted to, as stimulating drinks, dry warmth or exercise.

625. **The Tepid Bath**, the temperature of which is from 85° to 92° F., is generally used for cleansing the body. It is prescribed in fevers and inflammatory affections for its cooling effects. It is usually medicated with some acid or alkali. The latter unites with the oily secretion of the skin and forms a soapy compound easily removed by the water. The temperature should be regulated according to the vitality of the patient, and the bath may be repeated two or three times a day. It removes superfluous heat, and keeps the skin in a good condition for excretion.

626. **The Warm Bath**, at a temperature varying from 92° to 98° F., is always agreeable and refreshing. It equalizes the circulation and softens the skin, by removing all impurities. It moderates pain and soothes the whole system. It does not weaken or debilitate the person, but is in every way beneficial. It is an efficient remedial agent in many chronic diseases, convulsions, spasmodic affections of the bowels, rupture, rheumatism, and derangement of the urino-genital organs. It should be employed immediately before retiring, unless urgent symptoms demand it at other times. It may be medicated or not, as circumstances require, but should always be taken in a warm room.

627. **The Hot Bath** at a temperature of from 98° to 110° F. is a powerful stimulant. It excites the nerves, and through them the entire system. It causes a sense of heat and a constriction of the secretory organs; but perspiration, languor and torpor, soon follow. In the sudden retrocession of cutaneous diseases, it restores the eruptions to the surface and insures speedy relief. The hot bath may be applied locally when circumstances require.

628. **The Russian Bath** consists in the application of hot vapor, at a temperature varying from 112° to 200° F. The patient is first subjected to a moderately warm temperature, which is gradually increased as he becomes inured to it, the head being surrounded with cloths wet in cold water. Upon emerging from it, the bather is plunged into cold water or receives a cool shower bath.

In rheumatic and cutaneous diseases, chronic inflammations and nervous affections, the Russian bath is an effective remedy, and unless the patient has some malady contra-indicating its employment, it neither produces weakness nor predisposes the system to attacks of cold. Indeed, in Russia, these practices are not only pleasurable, but strengthen the constitution, thus enabling the inhabitants to endure the extreme cold to which their climate subjects them. The hot vapor causes a sense of pressure, which is soon followed by a profuse perspiration. It instantaneously affects the perspiratory glands, increasing their activity and thereby eliminating the broken-down tissue cells and noxious matter.

629. **The Turkish Bath** is a dry, hot-air bath. The bather passes from one apartment to another, each one being of a higher temperature than the preceding. He undergoes a thorough shampooing, and although the person may be scrupulously neat he will be astonished at the amount of effete matter removed by this process. The bather then returns through the various apartments, and upon emerging from that of the lowest temperature, he experiences a delightful sensation of vigor and elasticity. The duration of the bath is optional. In Oriental countries, it is from fifteen to twenty minutes, and is often increased to as many hours. Persons having the management of Russian and Turkish baths are expected to instruct bathers in the necessary precautions against exposure to cold.

630. **The Spirit Vapor Bath** is an excellent substitute for the Russian or Turkish bath, and is very effective when employed in the earlier stages of acute, febrile, inflammatory and painful diseases. In many forms of chronic disease the administration of a spirit vapor bath once in from three to fifteen days, is an invaluable adjunct to the treatment of these affections. It exerts an exceedingly beneficial influence upon the entire system, and when habitually employed, will ward off disease.

The body should be moistened with an alkaline solution before entering the spirit vapor bath. After the perspiration, which it occasions, has subsided, which will usually be in from three to four hours, sponge the body with a mixture of the following ingredients, viz.: Water, three gills; Alcohol, one gill; Salt, one tablespoonful. By this method the patient experiences none of the unpleasant effects which generally follow the employment of diaphoretics or sudorifics. Various kinds of apparatus have been devised to facilitate the application of the spirit vapor baths. Most of them are cumbersome and expensive, and consequently are seldom used except in hospitals or infirmaries.

The following method which I find in a work entitled "Chronic Diseases," by John King, M. D., may be advantageously employed.

631. "The patient is undressed, ready for getting into bed, having removed the clothing worn through the day and put on a night shirt or other clothing to be worn while sweating, and during the night, if the bath is taken at bed-time. He is then seated on a high Windsor or wooden-bottomed chair, or instead thereof, a bench or board may be placed on a common open-bottomed chair, care being taken that the bottom is so covered that the flame will not burn him. After seating himself, a large coverlid or blanket is thrown around him from behind, covering the back of his head and body, as well as the chair, and another must be passed around him in front, which last is to be pinned at the neck, loosely, so that he can raise it and cover his face, or remove it down from the face from time to time as occasion demands during the operation of the bath. The blankets must reach down to the floor and cover each other at the side, so as to

retain the vapor. This having been done, a saucer or tin vessel, into which is put one or two tablespoonfuls of whisky, brandy, alcohol or any liquor that will burn, is then placed upon the floor, directly under the center of the bottom of the chair, raising a part of the blankets from behind to place it there. Then light a piece of paper, apply the flame to the liquor and as soon as it kindles let down the part of the blanket which has been raised, and allow the liquor to burn until it is consumed, watching it from time to time to see that the blankets are not burned. As soon as consumed, put more liquor into the saucer, about as much as before, and again set it on fire,—being careful to put no liquor into the saucer while the flame exists, as there would be danger of setting fire to the blanket, and producing injury to the patient. Continue this till the patient perspires freely, which, in a majority of cases, will be in five or ten minutes.”

“If, during the operation, the patient feels faint or thirsty, cold water must be sprinkled or dashed in his face, or he may drink one or two swallows of it,—and in some cases the head may be bathed with cold water. As soon as free perspiration is produced, wrap the blankets around him, place him in bed and cover him up warm, giving him about a pint of either some good store tea, ginger, or some diaphoretic herb tea to drink, as warm as he can take it. After two or three hours, remove the covering, piece by piece, at intervals of twenty or twenty-five minutes each, that he may gradually cease perspiring.”

The above method may be improved by using an ordinary hoop skirt, ten or twelve inches below the bottom of which is suspended a larger and stronger hoop. The upper and smaller hoops should rest upon the patient's shoulders. A woolen blanket, large enough to reach and rest upon the floor, and envelop the whole person, is thrown over the hoops. Unless the bath is employed to diminish the quantity of fluids in the body (as in dropsy), the patient may drink some simple diaphoretic infusion, to hasten or facilitate perspiration. When he perspires freely, small quantities of cold water may be frequently given. “There is little or no danger of taking cold after this process, if ordinary precaution is observed, and it is easy, agreeable, safe and effectual.”

632. "Occasionally we will meet with patients, upon whom it is almost impossible to produce the slightest moisture, much less perspiration. The skin of such persons is generally dry and harsh, communicating an unpleasant sensation to the touch. In most instances the skin may be restored to its normal condition, by adopting the following course: 1st. Anoint the whole surface of the body and limbs every night upon retiring to bed. 2d. Every morning wash the whole surface with a warm, weak alkaline solution, employing considerable friction while drying. 3d. Every two weeks administer a spirit vapor bath. Perseverance in this course for a few months will accomplish the desired result."—(*Chronic Diseases*—KING.)

This bath is a useful remedy in Bright's disease of the kidneys. Frequent reference to spirit vapor baths will be made by the author of this work, in speaking of those diseases in which its employment will prove beneficial.

633. **A Vapor Bath** may be improvised, although it is not as effectual as the spirit vapor bath. Connect a tube with some close vessel in which water is boiling, and carry the other end of the tubing under a chair upon which the patient sits, prepared as before. The hot steam escapes through the tubing and envelops the whole body. It may be medicated or not, as desired. When the patient is unable to be removed from the bed, the steam may be conducted into the bed. The clothes should be raised and supported upon hoops, forming a sufficiently large space to retain the vapor.

634. **Electric and Magnetic Baths** are quite extensively employed, and are attended with beneficial results, when properly adapted to the condition of the patient. The electro-positive, increases, and the electro-negative bath diminishes, vital forces.

To give an electro-positive bath, the electricity which accumulates upon the glass must be collected, while the negative electricity, with which the rubbers are charged, should be disposed of as rapidly as it is generated. To effect this end, a metallic chain, communicating with the ground, must be attached to the rubbers, between which the glass plate revolves. The patient is placed upon an insulated stool, which may be improvised by placing pieces of glass under the feet of a chair. Glass

being a non-conductor, there is no communication with the floor or ground. He is required to hold the prime conductor of the electric machine. When the glass plate is revolved, the body of the patient becomes charged with positive electricity, while the surrounding air is negative.

For an electro-negative bath, this process is exactly reversed.

635. **The Galvanic Bath** is employed for similar purposes, and is prepared by placing the patient in a bath tub (the inside of which is painted, or otherwise insulated), filled with water containing any drug deemed necessary. A wire connected with the positive pole, and having a sponge attached to it, communicates with the body. The negative pole is suspended in the water. The galvanic current from the positive pole, fills the body and escapes through the pores. A Pulvermacher chain is usually employed as a conductor, and no shock is experienced, except when it is first applied to the body. "A genial glow soon appears, and an exhilaration of spirits; the secretions are freed, and tone, sooner or later, according to the case, is the result."

636. **Sea Bathing** is an excellent remedial agent in chronic disorders, particularly those of an atonic character, which are attended with a deprivation of the vital fluids and an irritation of the nervous system.

Much of the benefit attributed to this mode of bathing is undoubtedly due to other influences, such as pure air, exercise, change of scenery, diet and new associations which surround the patient during his sojourn at the sea-shore.

At first, the duration of a sea-bath should not exceed three to five minutes, but may be gradually prolonged to fifteen or twenty minutes. If the patient is very feeble, one or two baths a week are sufficient, and the most robust person should never take more than one a day. They should always be taken in the earlier portion of the day, before breakfast is preferable, and *never during digestion*.

Before entering this bath, a moderate degree of exercise should be taken, enough to arouse the vital energies, but not to produce fatigue. Suitably dressed, the patient plunges into the water, in which he remains during the prescribed time. He should maintain an upright position, to receive the stimulating

influence imparted by the motion of the waves. Immediately after emerging from the bath, the patient should be thoroughly dried, dressed again and moderate exercise taken to induce reaction. If the reaction is slow, a mild stimulant may be taken and the duration of the bath must be diminished next time. When sea-bathing is beneficial, improvement is soon manifested. The blood becomes richer, the whole system is revitalized and the functions are performed with more regularity. To the rich, sea-bathing is a luxury, but it is a remedy denied to the poorer classes unless they live near the sea-shore.

637. **The Shower Bath** produces a shock to the nervous system by its concussion with the skin. Numerous streams of cold water fall upon the neck, shoulders and body of the patient who stands beneath the hose or reservoir. When the patient is plethoric, feeble or nervous, or when some internal organ is diseased, the cold shower bath should *not* be employed. In simple debility, unaccompanied by inflammation or symptoms of internal congestion, its use will prove advantageous. By moderating the force of the shower, and substituting tepid water, the most delicate persons can endure it and profit thereby. The usual means for inducing a good reaction should be employed, viz., friction and exercise.

638. **The Douche Bath** consists of a stream of water, dashed or thrown upon the patient from a moderate height or distance, with considerable force. The size, temperature and force of the stream may be modified to suit the exigencies of the case. It is locally employed as a remedy for sprains, weak or stiff joints, old swellings, etc., etc. The cold douche bath is more powerful than the shower bath and should be attended with the same precautions that govern the application of the latter.

639. **The Sponge Bath** admits of extensive employment in both acute and chronic diseases, and its simplicity renders it of untold value. It consists in a general or local application of water (medicated or not) at any desired temperature. The quantity may be great or small to suit the exigencies of the case. If it is applied in acute diseases at a temperature agreeable to the patient, it is exceedingly grateful and may be repeated as often as necessary. It may be rendered alkaline by

the addition of some compound of soda, in the proportion of a teaspoonful to a quart of water. A portion of the body may be bathed at a time, and quickly dried, thus avoiding any exposure to cold. It removes excessive animal heat, relaxes the capillaries, equalizes the circulation and produces comfort, tranquility and sleep. Its temperature is generally the same as that of the tepid bath (see ¶625).

640. **The Foot Bath,** technically termed *pediluvium*, is frequently employed as a means of causing diaphoresis, in colds, attacks of acute diseases, and also as a derivative* when there is a determination of blood to the head or some internal organ. It is a powerful auxiliary in the treatment of those chronic diseases, of which inflammation, congestion and feeble circulation are prominent symptoms. A bucket, pail or any vessel of a similar form, will be suitable for its application. The water should be as hot as it can be borne, and the temperature kept up by additions of hot water. It may be made stimulating by the addition of salt, mustard, ginger, cayenne pepper, etc., etc.

641. **The Sitz Bath.** A tub is so arranged that the patient can sit down in it while bathing. In this manner the lower part of the abdomen, hips and upper part of the thighs, are immersed in whatever fluid the bath is composed of. It is applicable in diseases of the pelvic organs, and may be hot, warm, cool, cold or medicated, according to the effect desired.

The bath tub should be large enough to permit a thorough rubbing and kneading of the diseased parts, and the patient may remain in it from ten to thirty minutes. The clothing may be wholly or partially removed, as agreeable to the individual. A *warm* sitz bath is an effective remedial adjunct in suppression or painful menstruation, gravel, spasmodic and acute inflammatory affections generally. The *cold* sitz bath is used as a tonic in cases of relaxed tissues of the pelvis, feeble condition of the urino-genital organs, piles, prolapsus of the rectum, constipation, etc.

642. **The Head Bath.** A shallow basin contains the fluid for the bath; and the patient, assuming a recumbent

* A derivative is a remedy which, by producing a modified action in some organ or texture, derives from the morbid condition of some other organ or texture.

position, immerses a portion of the head—generally the back part. The temperature may be warm, cool, or cold, as desired.

643. **Medicated Baths** are infusions of vegetable or other substances in water. They are sometimes applied with the sponge, though generally the patient is immersed. The temperature at which they are usually employed is that of the tepid bath (see ¶ 625). The nature and strength of the medicament depends upon the character of the disease for which it is employed.

644. **The Alkaline Bath** is prepared by dissolving half-a pound of Carbonate of soda in sixty gallons of water. It is useful in those diseases in which the fluids of the body are acidified. Rheumatism is a disease of this character.

645. **The Acid Bath** is prepared by adding two pounds of Muriatic acid to sixty gallons of water. A much smaller quantity of the acid sometimes is used, and in some instances vinegar is substituted.

Scott's Acid Bath is composed of Nitro-muriatic acid (aqua regia) and water. It should be prepared in a wooden tub, and a sufficient quantity of acid used to make the water taste sour. It is extensively used in India as a remedy for disorders of the liver.

646. **The Iodine Bath** is composed of the following ingredients, viz: Iodine, two drachms; Iodide of Potassium, four drachms; Water, forty gallons. It should be prepared in a wooden tub. It reddens the skin. For children, a much weaker solution must be employed. The Iodine vapor bath may be administered in the same manner as the Spirit Vapor bath (see ¶ 630). Its use is generally restricted to scrofulous and tubercular affections.

647. **The Sulphur Bath** is prepared by dissolving eight ounces of Sulphuret of Potassium and two ounces of dilute Sulphuric acid in sixty gallons of water. The acid may be omitted.

648. **A Sulphur Vapor Bath** is often employed in cities where the necessary apparatus can be procured. It may be improvised by placing sulphur on a shovel over hot coals. The patient should be prepared as in the spirit vapor bath, and

burning sulphur substituted for the liquor. The patient is then enveloped in the fumes of sulphurous oxide. Heating a mixture of sulphur and sulphuric acid, produces the same result. If the gas is inhaled in large quantities (sulphurous oxide), it causes irritation of the respiratory passages, and suffocation. It is therefore necessary that the coverings should be securely fastened at the neck, and the room be one that can be quickly filled with pure air. This bath is used in cutaneous, rheumatic, syphilitic and similar disorders.

649. **Fomentations** consist in the general or local application of woolen cloths wrung out of hot water. They should not be so light as to be ineffectual, nor so heavy as to be burdensome. They should not be wet enough to drip, nor applied so as to expose the body to the surrounding air. A fresh cloth should be ready for application before the old one is removed, and the change quickly effected. Fomentations are effectual in relieving congestion and inflammation.

650. **The Wet Sheet Pack.** As this remedial appliance will be frequently recommended in the pages of this volume, its mode of application is here described. Take a pail half filled with cold water, gather together one end of a common cotton sheet, and immerse it, allowing it to remain while preparing the bed, which may be done as follows: remove all the bed-clothes except a coverlet and the pillows, then spread upon it, in the following order, two ordinary comforters, one woolen blanket, one woolen sheet, (or two woolen sheets if a woolen blanket is not at hand); then wring out one-half or two-thirds of the water from the wet sheet, spread it smoothly upon the blanket, and, the patient being undressed, places himself on the sheet, with his arms extended, while an assistant wraps him closely and tightly with it, as quickly as possible. Each arm may be thus covered by the wet sheet, or may lie outside of it, and be covered by wet towels, prepared in the same manner as the sheet. Then quickly and tightly cover with the blankets and comforters, tucking snugly from head to foot. The head should also be covered with a wet towel, and a bottle of warm water placed to the feet or near enough to keep them warm.

After the first shock of the chill is over, the pack is very pleasant and refreshing, and the patient should go to sleep, if

possible. The ordinary time for a patient to remain in a pack is about sixty minutes. Thirty or forty minutes is sufficient, if he be in a feeble condition. Never wring the sheet out of warm water, for one of its principal benefits comes from the vigorous reaction induced by its cold temperature. After remaining in the pack from thirty to sixty minutes, allow the patient to stand on his feet, if he is able, and have the whole surface of his body bathed. Rub briskly and dry with towels, or by throwing over the body a dry sheet and then rubbing him. The dry sheet retains the bodily warmth and is more comfortable, but interferes with the completeness and vigor of the rubbing of the body. Be sure and establish full reaction, which may be known by the warmth of the surface. Oftentimes, when the patient is released from the pack, and is being bathed, rolls of scales, scurf and *skin-debris*, come off, thus giving palpable evidence of the utility of the pack in freeing the myriads of pores of the skin from morbid matter. It is efficient in shortening the career of fever, breaking up the onset of colds and is a very efficient remedial agent in most chronic diseases, assisting in removing causes that continually depress the bodily functions.

CHAPTER IV.

HYGIENIC TREATMENT OF THE SICK.

651. There are two essentials requisite to the successful treatment of the sick: (1.) Medical skill; (2.) Good nursing. The former is necessary in order that the condition of the patient be fully understood, and the proper means be employed to effect his recovery. The latter is essential, in order that all influences favoring the production and development of disease may be removed, the tendencies to restoration be promoted by every possible means, and the directions of the physician be properly observed.

652. Success in the treatment of the sick requires good nursing. Without it, the most skillful physicians fail in effecting a cure; with it, the most unqualified may succeed. If certain hygienic agencies are essential to the maintenance of health, how much more necessary that they be employed in sickness! If certain conditions cause disease, how great the necessity that such conditions be obviated and hygienic ones substituted!

Notwithstanding the importance of good nursing (which all must concede), in the rural districts it is frequently difficult to find a professional nurse, or, if one can be obtained, it is often impossible for the invalid to procure her services, on account of the expense which must necessarily be incurred. Hence, this office usually devolves upon some relative who is considered to be the best qualified for the position; or, as is often the case, necessity demands that the patient be left to a change of nurses.

653. Woman is *generally* selected for this important position, since she is best adapted to fulfill its duties. Her soft hand and soothing voice, her kindly, sympathetic, and provident nature,

together with her scrupulous cleanliness, render her man's equal, if not his superior, in the capacity of nurse. There are circumstances, however, in which his services are indispensable; hence the necessity of being qualified to care for the sick. It may not be out of place to specify some of the qualities requisite to constitute a good nurse, so that all upon whom the care of the sick devolves, may acquire them.

654. A nurse should be attentive to the requirements of physician and patient, for she sustains an intimate relation to both. She should observe the directions of the physician, and faithfully perform them. She should note all the symptoms of the patient, and do everything in her power to promote comfort and recovery. She should anticipate his wishes, and not cause him to ask for everything which he desires. In so far as practicable, let his wishes be gratified. The senses of the sick often become morbidly acute, and those things which in health would pass unnoticed, in sickness are so magnified as to occasion annoyance and vexation. Sick persons are not all alike, and the peculiarities of each must be studied separately. The nurse must be *kind*, but *firm*, and not yield to such whims of the patient as will be detrimental to his recovery; neither must she arouse his dislike or anger by opposition, but endeavor to *win* him from his delusions. The feelings of the patient should never be trifled with, for idealities become realities to him. Secure his good-will, confidence and respect, show him that an interest is taken in his welfare, sympathize with him, listen to his vagaries, but do not encourage them.

655. The nurse should possess an inexhaustible store of patience. Disease affects the mind of the patient and pervades it with strange delusions. He is often querulous, fretful and unreasonable, and should be treated with kindness, forbearance and sympathy. The nurse should always be cheerful, look on the bright side of every circumstance, animate him with encouragement and inspire him with hope. Hope is one of the best of tonics. It stimulates the flagging, vital energies, and imparts new life to the weak and exhausted forces. Gloom, sadness and despondency depress the vital forces and lead to death. In ¶ 156, we have observed that the body is materially influenced and affected by the mind. We have seen patients rapidly

sinking, who had given up to die, and were quietly awaiting the coming of the death-angel, snatched as it were from his grasp, and restored to health, by words of cheer and encouragement.

The nurse should possess *moral principles*, which alone can win the confidence of the patient. She should have judgment, circumspection, intelligence, forethought, alacrity, carefulness and neatness. In a word, she should exercise *common sense*.

656. We deem it but justice to say a word in behalf of the nurse. She too is a human being, subject to disease, and unless hygienic conditions are observed, will soon be stricken low by its presence. She must be relieved occasionally and get rest, or she cannot long withstand the combined influence of fatigue and disease. Her office is an arduous one at best, and the long, weary hours of night-watching should be compensated by exercise in the open air, as well as sleep during the day. Unless this is done, nature will become exhausted, and sleep will intrude itself upon her at the time when the greatest diligence is required for the welfare of the patient—when his vital powers are at their lowest ebb, in “the wee sma’ hours o’ morning.” She should be supplied with plenty of suitable food during the night, to sustain her powers and to serve as a safeguard from the invasion of disease. She should be treated with kindness and respect, else her disposition may become morose and reflect itself upon the patient, rendering him peevish and despondent.

657. **The Sick Room** should be as comfortable, cheerful, and pleasant, as circumstances will allow. Let the room be large and airy, with high walls, and furnished with a stove—or better—a fire-place. All articles of clothing and furniture, not necessary to the comfort of the patient, should be removed from the room, and in *malignant* or *contagious* diseases the carpets, even, should not be permitted to remain. The surroundings beget happiness or gloom, in proportion as they are pleasant or disagreeable. A tidy attendant, a few flowers and books, wonderfully enhance the cheerfulness of the room. Permit no unnecessary accumulation of bottles, or any thing that can in any way render the room unpleasant. Medicines, drink or nourishment, should never be left uncovered in the sick-room, since they quickly absorb the gaseous emanations from the patient, and become unfit for the purpose which they were intended to

subserve. Their presence gives the room an untidy appearance, suggestive of filth and slovenliness, and imparts to the patient a feeling of loathing and disgust for articles of diet.

658. **The Bed** should not be of feathers, on account of their undue warmth, which causes a sensation of languor throughout the system. A husk or sea-grass mattress, or even a straw bed, covered with a cotton quilt, is far preferable. The bedding should be changed at least once every day. It is better that the bed should be away from the wall, so as to admit of greater freedom of movement about it.

659. **Pure Air** is necessary to the continuance of life. The air in the sick-room should be kept as pure as that without. That which is so necessary in health, is indispensable in sickness. The importance, therefore, of a perfect and free ventilation of the sick-room cannot be too thoroughly impressed: and yet to properly secure this end, may call forth a considerable amount of ingenuity on the part of the nurse. A window should be open, but the current of air must not be allowed to blow directly upon the patient. One window may be raised from the bottom and another lowered from the top. This will permit the entrance of pure air from without, and the exit of the vitiated from within. The patient, if sufficiently covered in bed, is not liable to take cold from a proper ventilation of his room. Especially is this true, when the bodily temperature is raised by febrile or inflammatory infections. The *temperature* of a room is no indication of the *purity* of the air. It is a prevalent—though mistaken notion—that because a room is cold, the air must be pure. Cold is as readily contaminated with impurities as heat; so it is not sufficient that the room be kept cool, but the air should be frequently changed. During convalescence, great care is necessary to protect the patient from taking cold. Air that is admitted into the sick-room should not be contaminated by passing over foul drains, privies, or other sources of infection, since, instead of invigorating, it depresses the physical forces and generates disease. Were our visual senses cognizant of atmospheric impurities, no argument would be necessary in favor of free ventilation to obtain pure air.

660. **Light** is as necessary to health as is pure air. Both are God-given invigorators. Banish either for any continuous

length of time, and serious results follow. The strong, robust man, when deprived of light, soon degenerates into a feeble, sickly being, and finally dies.

According to the investigations of the Massachusetts Medical Society, it is found that absence of sunlight, together with moisture, not only favor the development of tubercular consumption, but act as an exciting cause. It is well known that persons living in shaded dwellings often suffer from forms of disease which resist all treatment until proper admission of light is secured.

The Physician to the Emperor of Russia found upon examination that patients confined in well lighted wards, were four times as liable to recover as were those in poorly lighted rooms. Children reared away from the sunlight are apt to be deformed and idiotic, while those partially deformed have been restored by being admitted to the light.

661. Patients sometimes wish to have their rooms darkened, because the light is painful to their weak and sensitive eyes. It is far better to shade the eyes and admit the sunlight into the room, since its rays cause chemical changes to take place, and thus favor the return of health. Many invalids can credit their recovery to the influence of a sun bath. There are, however, conditions in which the patient should be screened from the light. In such cases a little arrangement of the curtains or shutters will accomplish all that is to be desired.

Patients convalescing from acute, or suffering from chronic diseases, should receive the influence of light in the open air, and be in it several hours each day. Light and pure air stimulate a healthful development, induce cheerfulness, hope and recovery, while darkness begets gloom, sadness, despondency, disease and ultimately, death.

662. **Warmth** is essential to the well being of the patient and it is necessary that a proper temperature be maintained in the room. Except in very warm weather a little fire should be kept in a stove—or what is preferable—in a fire-place or open grate, and at the same time fresh air should be admitted from without, and thus a uniform temperature will be preserved. This arrangement is especially necessary in localities where great variations in temperature are experienced during the day and night.

The normal temperature of the body ranges from 98° to 99° F. The minimum occurs from 2 to 6 A. M. The maximum, from 1 to 6 P. M. The deviation of a few degrees from this standard, indicates disease, and the greater the deviation, the greater its severity. During the early stages of acute diseases, the animal heat is generally increased, and should be allayed by bathing, and cooling or acidulated drinks. In the latter stages, the temperature becomes diminished and the condition of the system is favorable to congestions, which are most likely to occur between the hours of 2 and 6 A. M., when the vital powers are lowest. The patient then becomes feeble, his extremities cold, and he has what is termed a "sinking spell," and perhaps dies. It is during these hours that additional covering, hot bricks to the feet, or jugs of hot water at the thighs and armpits, friction upon the surface, stimulating drinks, and increased vigilance on the part of the nurse will often save the patient's life. But, unfortunately, at these hours the nurse is apt to get sleepy and inattentive, the demands of the patient go unheeded, and his life pays the forfeit.

Persons suffering from chronic diseases, or those in feeble health, should conserve their vital energies by dressing warmly, wearing flannels next the skin, and carefully protecting the feet from cold and moisture.

663. **Cleanliness** cannot be too thoroughly impressed upon the minds of those who have the care of the sick. Filthiness is productive of disease and favorable to its development. Bathing at least once a day, with pure, soft water and toilet-soap, is strongly urged, and as this is designed for cleanliness, the temperature of the bath should be made agreeable to the patient. For the remedial effects of baths, see article on "Water as a Remedial Agent,"—Chap. III, Part III. Bathing opens millions of avenues of the skin, allowing the effete animal matter to escape as soon as it comes to the surface, thus relieving the internal organs—now struggling for recovery—from the necessity of ejecting it.

664. **The Clothing and Bedding of the Patient** in acute diseases, should be changed every day and thoroughly aired, if not washed. As soon as removed they should be taken from the room, replaced by others *well aired and*

warmed. The hands and face of the patient should be bathed frequently, hair combed, teeth brushed, nails cleaned, lips moistened, and everything about him kept clean and tidy. These observances, although in themselves trifling, promote comfort and cheerfulness, and contribute largely to the recovery of the sick. All excretions from the patient should be buried; not committed to privies to communicate disease to those who frequent them.

665. **The Diet** sustains a very important relation to health. During the progress of acute disease, the appetite is generally much impaired, if not entirely absent. It should then be the study of the nurse to devise such articles of nourishment as will be acceptable to the patient and suitable to his condition. Variety is necessary. He soon tires of one kind of diet. His food should be light, nutritious and easy of digestion.

Each individual disease requires a diet adapted to its peculiarities. Those of an inflammatory character require a non-stimulating diet, as gruel, barley-water, toast, etc. An exhausted or enfeebled condition of the brain, unattended by irritability, demands a stimulating diet, as beef, eggs, fish, Graham bread, oysters, etc. In wasting diseases, where the temperature of the system is low, beef, fatty substances, rich milk, sweet cream, and other carbo-naceous articles of diet, are recommended. In the various forms of chronic ailments, the diet must be varied according to the nature of the disease and the peculiarities of the patient. Deranged digestion is generally an accompaniment of chronic diseases. A return to normal digestion should be encouraged by selecting appropriate articles of food, and paying due regard to its quantity and quality, as well as to the manner and time of eating. The appearance of food, and the manner in which it is offered, have much to do with its acceptance or rejection by the patient. Let the nourishment have a neat and inviting appearance, and be presented in a nice clean dish, of a size and shape appropriate to the quantity. More food than will be eaten by the patient should not be placed before him at one time, since a great quantity excites disgust and loathing. In taking nourishment, drink, or medicine, the patient, if feeble, should not be obliged to change his position, nor should he be compelled to receive them upon his face, neck, and clothing, instead of into his mouth.

666. **Beef Tea** furnishes an excellent nourishment for the sick, but there are few, even among professional nurses, who know how to properly prepare it. I give one or two good recipes. One method is to chip up the lean of beef, fine, put it in a porcelain or tin saucepan, cover it with *cold* water, and bring it up to just below the boiling point, at which temperature *retain it* for ten minutes, then season and serve. Another method is similar to the foregoing, with this difference, that the juices of the meat are squeezed through a piece of muslin or crash, making the tea richer. Another way, which I consider preferable to either of the above, is to take lean beef, cut it into fine bits, put them in a tightly covered vessel, which is placed in a kettle of water kept boiling. Thus the whole strength of the juice will be obtained from the meat without losing any of its properties. It can be seasoned to the taste, and reduced with water to suit the needs of the patient.

667. **Sleep** is "Nature's grand restorer, a balm to all mankind; the best comforter of that sad heart whom fortune's spite assails." It is necessary in health, and doubly so in sickness. During sleep, the vital energies recuperate, the forces are less rapidly expended, and the strength increases. It is the great source of rest and refreshment. Often a day's rest in bed, free from the cares and anxieties of an active life, is sufficient to ward off the approach of disease. If quiet and rest are essential to recuperation in health, their necessity in disease must be apparent. Life and death frequently depend on tranquility and repose, and the least noise or confusion disturbs the sufferer and diminishes the chances for his recovery. Nothing annoys sick or nervous persons more than whispering and the rustling of newspapers. If conversation be necessary, let the tones be modified, but never whisper. In sickness, when the vital forces are low, the more natural rest and sleep the patient has, the greater his prospect for recovery. As a rule, *a patient should never be awakened when sleeping quietly*; not even to take *medicine*, unless in *extreme cases*. If the patient does not sleep, the cause should be ascertained and the appropriate remedies employed: if it arises from rush of blood to the head, cooling lotions should be applied, and warmth at the feet; if from restlessness or general irritability, a sponge bath, followed by friction; if the wakefulness is due to

noise or confusion, quiet is the remedy. When these means fail, anodynes, or nervines, should be employed. Lying on the side instead of the back should be practiced. Patients afflicted with chronic diseases, on rising, should take a cold bath, dry the surface quickly with a coarse towel, followed by friction with the hand. Great benefit may be derived by following these suggestions, when the nature of the disease is not such as to forbid it.

668. **Exercise** and rest necessarily alternate with each other. Exercise, so necessary to health, in many forms of disease greatly contributes to recovery. It sends the sluggish blood coursing through the veins and arteries with increased force and rapidity, so that it reaches every part of the system, supplying it with nourishment. It increases the waste of old material and creates a demand for new.

Convalescing patients, or those suffering from chronic diseases, whenever the weather will permit, should take exercise every day in the open air. This should be done with regularity. The amount of exercise must be regulated by the strength of the patient; never take so much as to produce fatigue, but as the strength increases the exercise may be increased proportionately. Some interesting employment commensurate with the patient's strength should be instituted, so that the mind may be agreeably occupied with the body.

When unable to take active exercise, the invalid, properly protected by sufficient clothing, should ride in a carriage or boat, and each day a new route should be chosen, so that a change of scenery may be observed, thus arousing new trains of thought, which will be exhilarating and prove beneficial to him.

669. **Sexual Influences.** During the progress of disease or convalescence, entire continence is enjoined. It is then necessary that all of the vital energies be employed in effecting a recovery from disease, without having the additional tax imposed of overcoming the debilitating effects of sexual expenditure. This holds true with regard to all diseases—especially those of the nervous system and genito-urinary organs.

670. **Visiting the Sick** may be productive of good or evil results. The influence of the mind upon the bodily functions has already been alluded to, (§156). Mental impressions

made upon the sick exert a powerful influence upon the termination of disease. The chances of recovery are in proportion to the elevation or depression of spirits. Pleasant, cheerful associations animate the patient, inspire hope, arouse the vital energies and aid in his recovery. While disagreeable and melancholy associations beget sadness and despondency, discourage the patient, depress the vital powers, enfeeble the body and retard recovery.

Unless persons, who visit the sick, can carry with them joy, hope, mirth and animation, they had better stay away. This applies equally in acute and chronic diseases. It does not matter what a visitor may *think* with regard to the patient's recovery, *an unfavorable opinion should never find expression in the sick-room*. Life hangs upon a brittle thread, and often that frail support is *hope*. Cheer the sick by words of encouragement, and the hold on life will be strengthened; discourage, by uttering such expressions as, "How bad you look!" "Why, how you have failed since I saw you last!" "I would have *another doctor*; one *who knows something*!" "You can't live long if you don't get help!" etc., and the tie which binds them to earth is snapped asunder. The visitor becomes a *murderer*! Let all persons be guided by this rule: *Never go into the sick-room without carrying with you a few rays of sunshine!*

If the patient is very weak the visitor may injure him by staying too long. The length of the visit should be graduated to the strength of the invalid. Never let the sufferer be wearied by your too frequent coming or too long remaining, nor by having too many visitors at once. Above all things, do not confine your visitations of the sick to the Sabbath. Many do this and give themselves credit for an extra amount of piety on account of it, when if they would scrutinize their motives more carefully, they would see that it was but a contemptible resort to save time. The sick are often grossly neglected during the week only to be visited to death upon the Sabbath.

671. The Use of Tobacco and Opium. The recovery of the sick is often delayed—sometimes entirely prevented—by the habitual use of tobacco or opium. In acute diseases, the appetite for tobacco is usually destroyed by the force of the disease, and its use is, of necessity, discontinued:

but in chronic ailments, the appetite remains unchanged, and the patient continues his indulgence greatly to the aggravation of the malady.

The use of tobacco is a pernicious habit in whatever form it is introduced into the system. Its active principle—Nicotine—which is an energetic poison, exerts its specific effect on the nervous system, tending to stimulate it to an unnatural degree of activity, the final result of which is weakness, or even paralysis. The horse, under the action of whip and spur, may exhibit great spirit and rapid movements, but urge him beyond his strength with these agents, and you inflict a lasting injury. Withhold the stimuli, and the drooping head and moping pace indicate the sad reaction that has taken place. This illustrates the evils of habitually exciting the nerves by the use of tobacco, opium, narcotic or other drugs. Under their action, the tone of the system is greatly impaired and it responds more feebly to the influence of curative agents. Tobacco itself, when its use becomes habitual and excessive, gives rise to the most unpleasant and dangerous pathological conditions. Oppressive torpor, weakness or loss of intellect, softening of the brain, paralysis, nervous debility, dyspepsia, functional derangement of the heart, diseases of the liver and kidneys, are not uncommon consequences of the excessive employment of this plant. A sense of faintness, nausea, giddiness, dryness of the throat, trembling, feelings of fear, disquietude, apprehensiveness, and general nervous prostration must frequently warn persons addicted to this habit, that they are sapping the very foundation of health. Under the continued operation of a poison, inducing such symptoms as these, what chance is there for remedies to accomplish their specific action? With the system already thoroughly charged with an influence antagonistic to their own, and which is sure to neutralize their effect, what good can medicine do?

Says Dr. King, "A patient under treatment should give up the use of tobacco, or his physician should assume no responsibility in his case, further than to do the best he can for him." In my own extensive experience in the treatment of chronic diseases, I often have found it necessary to resort to the same restriction.

The "opium habit," to which allusion has also been made, is open to the same objections, and must be abandoned by all who

would seek recovery. Let those who are addicted to this pernicious practice, listen to the voice of Wisdom, exclaiming in tones of gentle pity and tender remonstrance, "Why shouldest thou destroy thyself?" and at once reform.

PART IV.

DISEASES AND THEIR REMEDIAL TREATMENT.

INTRODUCTION.

672. "KNOWLEDGE IS POWER." That knowledge which is conducive to self-preservation is of *primary* importance. That great educator, profound thinker, and vigorous writer, Herbert Spencer, has pertinently said that, "As vigorous health and its accompanying high spirits, are larger elements of happiness than any other things whatever, the teaching how to maintain them is a teaching that yields to no other whatever. And therefore we assert that such a course of physiology as is needful for the comprehension of its general truths and their bearings on daily conduct is an all-essential part of a rational education."

673. Believing that the diffusion of knowledge for the prevention of disease is quite as noble a work as the alleviation of physical suffering by medical skill, I have devoted a large portion of this volume to the subjects of physiology and hygiene. These I endeavored to present in as familiar a style as possible, that they may be understood by every reader. Freely as I have received light upon these subjects have I endeavored to reflect it again, in hopes that a popular presentation of these matters, made plain and easy of comprehension to all people, may lead the masses into greater enjoyment of life—the result of a better preservation of health. This I do in part as a public acknowledgment of my obligation to society, *to whom every professional*

man is a debtor. He belongs to it, is a part of its common stock, and should give as well as receive advantages—*return* as well as *accept* benefits. I know of no better way to signify my appreciation of the public confidence and patronage so generously accorded me, than to offer this volume to the people at a price less than the actual cost for an ordinary sized edition. This I do as a token of the cordial reciprocation of their good will. In giving to the people wholesome advice, by which they may be enabled to ward off disease and thus establish the health of multitudes, I believe I shall receive the hearty approval of the people, as well as the approbation of my own conscience, both of which are certainly munificent rewards. I believe that good deeds are always rewarded, and the physician who prevents sickness shows a genuine and earnest loyalty to the common interests of humanity.

674. I have no respect for the motives of those medical men who would withhold such information from the people as will direct the masses how to take care of themselves, and thereby prevent much sickness and suffering. Nor is the diffusion of such knowledge derogatory to the best interests of the true and competent physician. The necessity for his invaluable services can no more be set aside by popularizing physiological, hygienic and medical truths, than we can dispense with those of the minister and lawyer by the inculcation of the principles of morality in our public schools. The common schools do not lessen the necessity for higher seminaries or universities, but rather contribute to their prosperity. Nor am I so presumptuous as to anticipate that I could possibly make this volume so instructive as to render “every man his own physician.” No man can with advantage be his own lawyer, carpenter, tailor and printer. Much less can he hope to artfully repair his own constitution when shattered by grave maladies, that not only impair the physical functions, but weaken and derange the mental faculties. What physician presumes to prescribe for himself, when suddenly prostrated by serious illness? He very sensibly submits to the treatment of another, because he realizes that sickness impairs his judgment, and morbid sensations mislead and unfit him for the exercise of his skill. If this is true of the physician, with what greater force does it apply to the non-professional!

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If a sick sea-captain is unfit to stand at the helm and direct his ship, how utterly incompetent must be the raw sailor when similarly disqualified! Nor is the physician as competent to treat those near and dear to him, when they are suffering from dangerous illness, as another medical man not similarly situated, whose judgment is not liable to be misled by intense anxiety and affectionate sympathy.

675. Notwithstanding all these facts however, a knowledge on the part of the non-professional, of something more than physiology and hygiene, and appertaining more closely to medicine proper, will many times prove invaluable.

(1.) In the inceptive stage of many acute affections which, if unheeded, gradually assume a threatening aspect, endangering life and demanding the services of the most skilled physician to avert fatal results, the early administration of some common domestic remedy, as a cathartic, or a sweating tea, associated with a warm bath, a spirit vapor-bath, or a hot foot-bath, will very often obviate the necessity for calling a family physician, and many times save days and weeks of sickness and suffering.

(2.) So, likewise, are there numerous acute diseases of a milder character that are easily and unmistakably recognized without the possession of great medical knowledge, and which will readily yield to such plain, simple medical treatment as is within the ready reach of all who strive to acquaint themselves with the rudiments of medical science. But in sudden and painful attacks of acute disease, life may be suddenly and unexpectedly jeopardized, and immediate relief prove necessary. While under these circumstances the prompt application of such domestic treatment as good common sense, guided by a knowledge of those first principles of medical learning which I shall hereafter endeavor to make plain, may result in speedy and happy relief, yet at the same time there should be no delay in summoning a competent physician to the sufferer's assistance.

(3.) Then, and not least important, there are the various chronic or lingering diseases, from all of which few individuals indeed, who pass the meridian of life, entirely escape. In this class of ailments there is generally no immediate danger, and therefore time may be taken by the invalid for studying his disease and employing such remedies as are best suited for its

removal. Or, if of a dangerous or complicated character, and therefore not so readily understood, he may consult, either personally or by letter, some learned and well known physician, who makes a specialty of the treatment of such cases, and whose large experience enables him to excel therein.

676. In consideration, therefore, of the foregoing facts, I deem it most profitable for my readers that Part Fourth of this volume should be devoted as follows:

(1.) The milder forms of uncomplicated acute diseases, which may be readily and unmistakably recognized, and successfully managed without professional aid, will receive that attention necessary to give the reader a correct idea of them, and their proper remedial treatment.

(2.) I shall devote only such attention to the severe and hazardous forms of acute diseases as is necessary in order to consider their initial stage, with their proper treatment, not attempting to trace their numerous complications, nor portray the many pathological conditions that are liable to be developed. For, by devoting much space to the latter, I could not presume to qualify my non-professional readers for successfully treating such obscure and dangerous conditions.

(3.) I shall devote the largest amount of space to a careful and thorough consideration of those chronic diseases, which, by a little study, may be readily recognized and understood by the masses, and for the cure of which, I shall suggest such hygienic treatment and domestic remedies as may be safely employed by all who are in quest of relief. In the more dangerous, obscure, or complicated forms of chronic diseases, the correct diagnosis and successful treatment of which tax all the skill possessed by the experienced specialist, the invalid will not be misled into the dangerous policy of relying upon his own judgment and treatment, but will be counseled not to postpone, until too late, the employment of a skillful physician.

677. In advocating Specialists, I do not desire to be understood as favoring those itinerant *self-styled* doctors, or "professors," who perambulate the country, imposing upon all who may be so unfortunate as to fall into their hands. No matter what pretensions they may make, or how familiar they may be with unintelligible terms, they are always unreliable, and ninety-nine out

of every hundred of them are swindlers, who know nothing about medicine, and when their victims seek them, are never to be found: they have accomplished their object, got the patient's money, and gone. Their positive assurances amount to nothing. It is axiomatic, that a physician who understands his profession, will get business enough at home, without having to tramp about the country to "drum up" custom.

678. The apportionment of space which is made in considering the various diseases and their different stages, as well as the course which the people are advised to pursue under the different circumstances of affliction, is not in accordance with the plans and recommendations that have been made by others who have written works on domestic medicine. Most of these authors have attempted, by lengthy considerations, to teach their readers how to treat themselves without the services of a physician, even in the most hazardous forms of disease. In such dangerous maladies as typhoid, typhus, yellow and scarlet fevers, typhoid pneumonia, and many others, in which life is imminently imperiled, such instruction and advice is decidedly reprehensible, as it may lead to the most serious consequences. I am confident, therefore, that the manner of disposing of the different subjects which are discussed in the succeeding chapters, and the course of action that is advised, will commend themselves to my readers as being such as are calculated to promote and subserve their best interests.

MEDICAL DIAGNOSIS.

679. Skill in the art of healing is indicated in three ways: (1.) By ascertaining the *symptoms*, *seat* and *nature* of the disease, which is *diagnosis*; (2.) By foretelling the probable termination, which is *prognosis*; (3.) By the employment of right and appropriate remedies, which is *treatment*. Of these three requisites to a prosperous issue, nothing so distinguishes the expert and accomplished physician from the mere pretender as his ready ability to interpret correctly the location, extent and character of an affection by its symptoms. By medical diagnosis then is understood the discrimination between diseases by certain symptoms which are distinguishing signs. Every malady is accompanied by its characteristic indications, some of which are

diagnostic, i. e., they particularize the affection and distinguish it from all others.

680. Medical diagnosis is both a *science* and an *art* ; a science when the causes and symptoms of a disease are understood, and an art when this knowledge can be applied to determine its location and exact nature. Science presents the general principles of practice; art detects among the characteristic symptoms the differential signs, and applies the remedy. Da Costa aptly remarks : "No one aspiring to become a skillful observer can trust exclusively to the light reflected from the writings of others ; he must carry the torch in his own hands, and himself look into every recess."

681. The critical investigation of symptoms, with the view of ascertaining their signs, is essential to successful practice. Without closely observing them, we cannot accurately trace out the diagnosis, and a failure in detecting the right disease is apt to be followed by the use of wrong medicines.

682. General diagnosis considers the surroundings of the patient as well as the actual manifestations of his disease. It takes into account the diathesis, *i. e.*, the predisposition to certain diseases in consequence of peculiarities of constitution. We recognize constitutional tendencies, which may be indicated by the contour of the body, its growth, stature and temperament, since all these facts greatly modify the treatment. Likewise the sex, age, climate, habits, occupation, previous diseases as well as the present condition, must be taken into account.

683. Auscultation, as practiced in detecting disease, consists in listening to the sounds which can be heard in the chest.

684. Percussion consists in striking upon a part with the view of appreciating the sound which results. The part may be struck directly with the fingers held in a bundle, but more generally one or more fingers of the other hand are interposed between the points of the fingers and the part to be percussed, that they, instead of the naked chest, may receive the blow; or, instead of the fingers, a flat piece of bone or ivory, called a Pleximeter, is placed upon the chest to receive the blow.

685. Latterly, improved instruments greatly assist the practitioner of medicine in perfecting this art. The Microscope assists the eye and helps to reveal the appearance and character of the

excretions, detecting morbid degenerations; Chemistry discloses the elementary constitution of the urine, which also indicates the morbid alterations occurring in the system; with the Pleximeter, we can determine the condition of an internal organ, by the sound given when the external surface is percussed; the ear, with the aid of the Stethoscope, detects the strange murmurs of respiration, the fainter, more unnatural pulsations of life, and the

Fig. 145.



Dr. Brown's Spirometer.

obscurer workings of disease; with the Spirometer we determine the breathing capacity of the lungs, and thus ascertain the extent of the inroads made by disease (I use Dr. Brown's Spirometer, which, for every inch of tubercular deposit in the lungs, indicates it by a falling off of forty cubic inches on the scale attached to the instrument); the Dynamometer records the lifting ability of the patient; the Thermometer tells the morbid variation in

the bodily temperature; various instruments inform us of the structural changes causing alterations in the specific gravity of fluids, *e. g.*, the Urinometer indicates those occurring in the urine, and thus, as the facilities for correct diagnosis increase, the art of distinguishing and classifying diseases becomes more perfect, and their treatment more certain.

686. While physiology instructs us in relation to the performance of all the natural functions, pathology shows the lesions and altered conditions, as well as the extent of morbid departure, and Cerebral Physiology is shedding its refulgent light upon the relationship between mental and physical functions, the forces of mind are resolved, even the phenomena of thought itself, to furnish the diagnostic signs of disease. The temperaments are investigated in an original manner, to evolve more completely the peculiarities of constitution of each individual, and to more perfectly analyze disease, in order that improvement in the practice of medicine may be attained. Thus,

not only diagnosis, but all departments of the healing art are improving year by year.

687. By symptoms we mean the evidence of any morbid effect or change occurring in the human body, and it requires close observation and well-instructed experience to convert these symptoms into diagnostic signs. Suppose "Old Probabilities" (as we commonly personate the invaluable Signal Department) hangs out his warning tokens all along our lake borders and ocean coasts; our sailors behold the fluttering symbols, but no one understands their meaning. The storm rages and fearful disaster follows. But if these signals are understood, a safe harbor is sought and the mariner is protected. So disease may hang out all her signals of distress, in order that they may be seen, but unless translated correctly, and a remedial harbor sought, these symptoms are of little practical moment.

688. Undoubtedly the reason why so many symptom-doctors blunder is because they prescribe according to the apparent symptoms, without any real reference to the nature of the affection. They fail in discovering how far a symptom points out the seat, and also the progress of a disease. They do not make a proper deduction of signs from the symptoms. The practical purpose of all science is to artfully apply knowledge to salutary and profitable uses. The patient himself may carefully note the indications, but it is the expert physician who can tell the import of each symptom.

689. *Symptoms* are within every one's observation, but the physician only knows the nature and value of *signs*. We have read an anecdote of Galen, the Father of Herbalists, who was a distinguished physician in his day, which illustrates the distinction between sign and symptom. Once, when dangerously ill, he overheard two of his friends in attendance upon him recount his symptoms, such as "Redness of the face, a dejected, haggard and inflamed appearance," etc. He cried out to them to adopt every necessary measure forthwith, as he was threatened with delirium. The two friends saw the *symptoms* well enough; but it was only Galen himself, though the *patient*, who was able to deduce the *sign* of delirium—that is, he alone was able to translate those symptoms into signs. To determine the value of symptoms, as signs of disease, requires close observation.

INTERPRETATION OF SYMPTOMS.

690. I will refer to a few symptoms which any non-professional reader may readily observe and understand.

691. **Position of Patient.** When a patient is disposed to lie upon his back continually, during the progress of an acute disease, it is a sign of *muscular debility*. If he manifests no desire to change position, or cannot do so, and becomes tremulous at the least effort, it indicates *general prostration*. When this position is assumed, during the progress of continued fever, and is accompanied by involuntary twitching of the muscles, picking of the bed-clothes, etc., then look out, for danger is imminent, and *the patient is sinking*. Fever, resulting from local inflammation, does not produce muscular prostration, and the patient seldom or never assumes the supine position. If this inflammation be in the extremities, those parts are elevated in order to lessen the pressure of the blood, which a dependent position increases.

692. For illustration let us change the scene, and introduce a patient with head and shoulders elevated, who prefers to sit up, and places his hands behind him and leans back, or leans forward resting his arms and head upon a chair. The next week he is worse, and no longer tries to lie in bed, but sits up all the time; note the anxious expression of countenance, the difficult or hurried breathing, the dry and hacking cough, and observe that the least exertion increases the difficulty of respiration and causes palpitation of the heart. These plain symptoms signify thoracic effusion—the collection of water about the lungs.

693. **The Countenance** displays diagnostic symptoms of disease. In simple, acute fever, the eyes and face are red and the respiration is hurried; but in acute, sympathetic fever, these signs are wanting. We cannot forget the pale, sharp, contracted and pinched features of those patients whose alæ (wings of the nostrils) contract and expand alternately by the acts of respiration. How hard it was for them to breathe. This contraction and expansion of the nostrils indicate active *congestion of the lungs*.

694. As a general rule, chronic inflammation of the stomach, duodenum, liver and adjacent organs, imparts a gloomy

expression to the countenance, at the same time the eye is dull, the skin dusky, or yellow, and the motions are slow. But in lung diseases, the spirits are buoyant, the skin is fair, and the cheeks flushed with fever and distinctly circumscribed with white, for delicacy and contrast, almost outrival in beauty the hues of health. Note, too, the pearly lustre and sparkling light of the eye, the quivering motion of the lips and chin, all signs of pulmonary disease.

695. We were once called in consultation to visit a young lady whose sallow pallor, fullness of the eyelids, puffy condition of the lips, morbid appetite and constipated condition of the bowels, had led the attending physician to diagnose chronic inflammation of the liver. When we reminded him that he was confounding *chlorosis* (green sickness) with chronic *hepatitis*, he referred to the constipated condition of the bowels, loaded tongue, and yellow skin, as indicating biliary derangement, and had forgotten that in this latter affection the white coat of the eye is also deeply tinged with yellow. We then satisfied him that the urine was not yellow nor the stools light clay-colored, neither was there any tenderness in the region of the liver, when he admitted his error, but by way of pleasantry remarked, that according to Eberle, Marshall Hall, and other standard writers, the remedies that he had employed were applicable to either derangement! It is hardly worth while to palliate a blunder, and yet we have always been amused with the adroitness of his ready reply.

696. **The Story of Sexual Abuse** is plainly told by the downcast countenance, the inability to look one fairly in the face, the peculiar lifting of the upper lip and the furtive glance of the eyes. The state of the mind and of the nervous system corroborate this evidence, for there seems to be a desire to escape from conversation and elude society. The mind seems engrossed and abstracted, the individual appears in a constant brown study, is forgetful and loses nearly all interest in the ordinary affairs of life. The whole appearance of a patient, suffering from spermatorrhœa, is perfectly understood by the experienced physician, for the facial expressions, state of mind, and movements of the body, all unconsciously betray, and unitedly proclaim, his condition.

697. **Tongue.** Much may be learned from the appearance, color, and form of the tongue, and the manner of its protrusion. If pale, moist and coated white, it indicates a mild, febrile condition of the system. If coated in the center, and the sides look raw, it indicates gastric irritation. If red and raw, or dry and cracked, it means inflammation of the mucous membrane of the stomach. If the inflammation be in the large intestine, the tip of the tongue presents a deep red color, while the center is loaded with a dark brown coating. When the tongue is elongated and pointed, quickly protruded and withdrawn, it indicates irritation of the nerve-centers, as well as of the stomach and bowels. If tremulous, it denotes congestion and lack of functional ability; this may be observed in congestive fevers.

698. **Pulse.** Usually the pulse beats five times during one respiration, but both in health and disease its frequency may be accelerated or retarded. In adults, there are from sixty-five to seventy-five beats in a minute, and yet in a few instances we have found it, in health, when there were only forty pulsations per minute. But when it beats one hundred and twenty to one hundred and forty, it justifies an apprehension of danger, and the case should receive the careful attention of a physician.

699. Irregularity of the pulse may be caused by disease of the brain, heart, stomach and liver; by the disordered condition of the nervous system; by lack of muscular nutrition, as in gout, rheumatism, convulsions; by deficiency of the heart's effective power, when the pulse-wave does not reach the wrist, or when it intermits and then becomes more rapid in consequence of septic changes of the blood, as in diphtheria, erysipelas, and eruptive fevers.

700. **Pain.** The import of pain is according to its seat, intensity, nature, duration, etc. An acute, intense pain indicates inflammation of a nerve as well as the adjacent parts. Sharp, shooting, lacerating pains occur in inflammation of the serous tissues, as in pleurisy. A smarting, stinging pain attends inflammation of the mucous membrane. Acute pain is generally remittent and not fixed to one spot. Dull, heavy pain is more persistent, and is present in congestions, or when the substance of an organ is inflamed, and it often precedes hemorrhage,

(bleeding). Burning pain characterizes violent inflammations involving the skin and subjacent cellular tissue—as in case of boils and carbuncles. Deep, perforating pain accompanies inflammation of the bones, or of their enveloping membrane. Gnawing, biting, lacerating pain attends cancers.

701. The location of pain is not always at the seat of the disease. In hip-disease, the pain is not first felt in the hip, but in the knee-joint. In chronic inflammation of the liver, the pain is felt in the right shoulder and arm. Disease of the heart and pericardium is sometimes indicated by pain at the wrist and elbow-joint of the left arm. Disease of the kidneys occasionally produces numbness of the thigh and drawing up of the testicle, and commonly causes colic pains. Inflammation of the brain is indicated by nausea and vomiting before attention is directed to the head. These illustrations are sufficient to show that pain often takes place in some part remote from the disease.

702. In chronic abdominal affections, rheumatic fevers, gout, syphilis, etc., the whole system is thrown into a morbid state, the nervous system is disturbed and wandering pains manifest themselves in different parts of the body. Fixed pain, which is increased by pressure, indicates inflammation. If it be only irritation, pressure will not increase it. Some rheumatic affections and neuralgia, will not only bear pressure, but the pain will diminish under it. Permanent pain shows that the structures of an organ are inflamed, while intermittent pain is a sign of neuralgia, gout or rheumatism. Absence of pain in any disease, where ordinarily it should be present, is an unfavorable sign. Internal pain, after a favorable crisis, is a bad omen. Or if pains cease suddenly without the other symptoms abating, the import is bad. If, however, pain and fever remit simultaneously and the secretions continue, the sign is favorable.

703. A dull pain of the head indicates fullness of the blood-vessels from weakness, low blood or general debility. It may be caused by taking cold, thus producing passive congestion of the brain. It may proceed from gastric disturbance, constipation of the bowels or derangement of the liver. Heaviness of the head sometimes precedes inflammation of the brain, or chronic disease of its membranes. A dull, oppressive pain of the head indicates softening of the brain, and is generally accompanied by

slowness of the pulse and of the speech. A pulsating pain of the head occurs in heart disease, hysteria, and frequently accompanies some forms of insanity.

704. **The Eye** indicates morbid changes and furnishes unmistakable signs of disease. Sinking of the eye indicates morbid waste—as in consumption, diarrhœa and cholera. In fevers it is regarded as a fatal token. A dark or leaden circle around the eye, seen after hard work, indicates fatigue and overdoing. If the mucous covering of the inner surface of the lids and of the ball of the eye (conjunctiva) be congested and inflamed, it exhibits redness, and may indicate congestion or even inflammation of the brain.

705. A dilated pupil will often be noticed in bronchial consumption, congestion of the brain, low fevers and chlorosis.

The pupil contracts in inflammation of the brain, when there is increased sensibility and intolerance of light; also in spinal complaints. In some diseases the lustre of the eye increases—as in consumption, inflammation of the brain and apoplexy. But if it decreases at the attack of violent disease, it indicates great debility and prostration.

706. **Examination of the Urine.** All medical authors, physicians of note, and professors in our different schools of medicine, freely admit and even insist upon the importance of critically examining the patient's urine, in order to determine the nature, location and exact condition of the disease. In chronic affections it is particularly serviceable, especially in derangements of the liver, blood, kidneys, bladder, prostate gland and nervous system. Many scholarly physicians have sadly neglected the proper inspection of the urine, because they were afraid of being confounded with the illiterate "uroscopian" doctors, or fanatical enthusiasts, who ignorantly pretend to diagnose correctly *all* diseases in this manner, thus subjecting themselves and their claims to ridicule. No false modesty should deter us from giving to this excretion the attention it deserves.

707. The urine, voided when the system is deranged or diseased, will be altered in its color and composition, showing that its ingredients vary widely from simple elements to organic compounds. Then it is examined as to its specific gravity, and the Urinometer indicates its density. Then follow the tests of its

acid or alkaline condition, to determine what acids or what alkalies are present. Then the Microscope will reveal the presence of blood, or sperm, or kidney cells, and sometimes disclose the true nature of the deposit. So important an aid do examinations of the urine furnish in diagnosing many chronic ailments, that, at the World's Dispensary, where many thousand cases are annually treated, a skillful chemist is employed, who makes a specialty of examining the urine and reporting the result to the attending physicians. His extended experience and familiarity with these experiments render his services invaluable. With his assistance, oftentimes maladies which had hitherto baffled all efforts put forth to determine their true character, have been quickly and unmistakably disclosed.

708. **Microscopical Examination.** This method of examination, although it requires more time to become expert, affords a quicker and more correct idea of a deposit or deposits than any other method. The expert, by simply looking at a specimen, can often determine the character of the urine, whether blood, mucous, pus, bile, uric acid, etc., are present or not. But when no deposit is present, then it is necessary to apply chemical tests, and in many cases the quantity of the suspected ingredient must be determined either by approximative or quantitative analysis. As a detailed account of the various modifications which the urine undergoes in different diseases, would be of no practical use to the masses, as they could not avail themselves of the advantages which it would afford for correct diagnosis, except by the employment of a physician who does not ignore this aid in examining his patients, I shall omit all further details on the subject. For the same reason I shall not often, in treating of the different diseases in which examinations of the urine furnish such valuable aid to correct diagnosis, make mention of the changes that are likely to have occurred.

INFLAMMATION.

709. The term *Inflammation* is descriptive of the state of a part when it is hotter, redder, more congested and more painful than is natural. Inflammation is limited to certain parts, while fever influences the system generally. Inflammation gives rise to new formations, morbid products, and lesions or alterations of

structure. The morbid products of fever, and its modification of fluids are carried away by the secretions and excretions.

710. The susceptibility of the body to inflammation may be *natural* or *acquired*. It is natural when it is constitutional; that is, when there is an original tendency of the animal economy to manifest itself in some form of inflammation. We may notice that some children are far more subject to boils, croups and erysipelous diseases, than others. This susceptibility, when innate, may be lessened by careful medication, although it may never be wholly eradicated. When acquired, it is the result of habits of life, climate, and state of the mind over the constitution.

711. Phlegmonous inflammation is the active inflaming of the cellular membrane, one illustration of which is a common boil. The four principal symptoms are redness, swelling, heat and pain, and then appears a conical, hard, circumscribed tumor, having its seat in the dermoid texture. At the end of an indefinite period, it becomes pointed, white or yellow, and gives exit to pus mixed with blood. When it breaks, a small, grayish, fibrous mass sometimes appears, which consists of dead cellular tissue, and is called the *core*.

712. There are *certain morbid states of the constitution* which lead to local inflammation, subsequent upon slight injury; or, in some cases, without any such provocation, as instanced by gout, rheumatism, scrofula, etc. When considering the encephalic temperament, I dwelt upon its strong and persistent tendencies to drain away the vital energies from the bodily functions. (§ 159 and 227.) One of the first results is to weaken the forces which distribute the blood to the surface and extremities of the body. It is generally admitted that in scrofulous persons the vascular system is weak, the vessels are small, and because nutrition is faulty, the blood is *imperfectly organized*. The result is failure in the system, for if nutrition fails, there may be lacking earthy matter for the bones, or the unctuous secretions of the skin: the sebaceous secretion is albuminous and liable to become dry, producing irritation of the parts which it ought to protect.

713. Disorder of the alimentary canal and other mucous surfaces are sometimes reflected upon the skin. I have occasionally observed cuticular eruptions and erysipelas, when evidently they were distinct signs of internal disorder.

714. Inflammation may be internal as well as external, as inflammation of the brain, lungs, stomach, etc., and it is frequently the result of what is called *taking cold*. No matter how the body is chilled, the blood retreats from the surface, which becomes pale and shrunken, there is also nervous uneasiness and oftentimes a rigor, accompanied with chattering of the teeth. After the cold stage, reaction takes place and fever follows. The sudden change from a dry and heated room to a cool and moist atmosphere is very liable to induce a cold. Riding in a carriage until the body is shivering, or sitting in a draft of air when one has been previously heated, or breathing a very cold air during the night when the body is warm, especially when not accustomed to doing so, or exposing the body to a low temperature when insufficiently clothed, are all different ways for producing inflammation.

715. Inflammation may result in consequence of local injury, as from a bruise, or by a sharp cutting instrument, as a knife or an axe, or it may be caused by the puncture of a pin, pen-knife blade or a fork-tine, or from a lacerated wound, as from a bite of a dog, or from a very minute wound poisoned by the bite of a venomous reptile. Local inflammations may arise from scalds, burns, application of caustics, arsenic, corrosive sublimate, cantharides, powerful acids, abrasions of the surface by injuries and from the occurrence of accidents.

716. The *swelling* of the part may be caused by an increase of the quantity of blood in the vessels, the effusion of serum and coagulating lymph, and the interruption of absorption by the injury, or by the altered condition of the inflamed part.

717. The character of the *pain* depends upon the tissue involved, and upon the altered or unnatural state of the nerves. Ordinarily, tendon, ligament, cartilage, bone, etc., are not very sensitive, but when inflamed they are exquisitely impressible.

The heat of the inflamed part is not so great, when measured by the thermometer, as might be supposed from the patient's sensations.

718. **Termination of Inflammation.** Every one is interested to know how inflammation may end, especially if he happens to be suffering from an attack. It will end in one of six different ways. It may terminate in *resolution*, i. e.,

spontaneous recovery, by *suppuration*, in the formation of matter, by *effusion*, as the inflammation caused by a blister plaster terminates by effusion of water, by *adhesion*, the part inflamed forming an attachment to some other part, by *induration*, hardening of the organ, or by *gangrene*, that is, death of the part.

719. Thus, inflammation of the lungs may terminate by recovery, that is, by resolution, by adhesion to the pleura, by suppuration and raising of matter, by hardening and solidifying of the lung, or by gangrene. Inflammation of the heart may thicken its walls or ossify its valves, inflammation of the pericardium (heart case) may terminate in effusion (dropsy), and inflammation of the liver may result in hardening and adhering to adjacent parts.

GENERAL PRINCIPLES FOR TREATMENT OF INFLAMMATION.

720. Remove the exciting causes as far as practicable. If caused by a splinter or any foreign substance, it should be withdrawn, and if the injury is merely local, apply cold water to the parts to keep back the inflammation. If caused by a rabid animal, the wound should be enlarged and cupped, and the parts cleansed or destroyed by caustic. The patient should remain quiet and not be disturbed. The use of tincture of veratrum (§597) internally, will be found excellent to prevent the rise of inflammation. A purgative is also advised, and four or five of my Pleasant Purgative Pellets will be sufficient to act upon the bowels. If there is pain, an anodyne and diaphoretic is proper. My Compound Extract of Smart-Weed will fulfill this indication. In local inflammation cold water is a good remedy, yet sometimes hot water, or cloths wrung out of it, will be found to be the appropriate application. When the inflammation is located on an organ within a cavity, as the lungs, hot fomentations will be of great service. Bathing the surface with alkaline water must not be omitted. Whenever the inflammation is serious the family physician should early be summoned in attendance.

FEVER.

721. In fever all the functions are more or less deranged. In every considerable inflammation there is sympathetic fever, but

in fevers proper there are generally less lesions of structure than in inflammation. Fever occasions great waste of the tissues of the body, and the refuse matter is carried away by the organs of secretion and excretion. The heat of the body in fever is generally diffused, the pulse is quicker, there is dullness, lassitude, chilliness and disinclination to take food. I intend to give only the general outline of fevers, enough to indicate the principles to be observed in domestic treatment.

722. Most fevers are very distinctly marked by four stages: 1st, the forming stage; 2d, the cold stage; 3d, the hot stage; 4th, the sweating or declining stage. During the first stage the individual is hardly conscious of being ill, for the attack is so slight that it is hardly perceptible. True, as it progresses, there is a feeling of languor, an indisposition to make any bodily or mental effort, and also a sense of soreness of the muscles, aching of the bones, chilliness, and a disposition to get near the fire. There is restlessness, disturbed sleep, bad dreams, lowness of spirits, all of which are characteristic of the forming stage of fever.

723. The next is the cold stage, when there is a decided manifestation of the disease, and the patient acknowledges that he is really sick. In typhus and typhoid fever the chills are slight; in other fevers they are more marked; while in ague they are often accompanied by uncontrollable shaking. When the chill is not so distinct the nails look blue and the skin appears shriveled, the eye is sunken and a dark circle circumscribes it, the lips are blue, and there is pain in the back. The pulse is frequent, small and depressed, the capillary circulation feeble, the respiration increased, and there may be nausea and vomiting. These symptoms vary in duration from a few minutes to more than an hour. They gradually abate, reaction takes place, and the patient begins to throw off the bedclothes.

724. Then follows the hot stage, for with the return of the circulation of the blood to the surface of the body, there is greater warmth, freer breathing, and a more comfortable and quiet condition of the system. The veins fill with blood, the countenance brightens, the cheeks are flushed, the intellect is more sprightly, and if the pulse is frequent, it is a good sign; if it sinks, it indicates feeble vital force, and is not a good symptom. If there is considerable determination of blood to the head,

it becomes hot, the arteries of the neck pulsate strongly, and we may expect delirium. During the hot stage, if the fever runs high, the patient becomes restless, frequently changes his position, is wakeful, uneasy and complains of pain in his limbs. In low grades, the sensibility is blunted, smell, taste and hearing, being impaired.

The patient in the hot stage is generally thirsty, and if he is allowed to drink much, it may result in nausea and vomiting. Moderate indulgence in water, however, is allowable. There is aversion to food, and if any is eaten, it remains undigested. The teeth are sometimes covered with dark sordes (foul accumulations) early in the fever, and the appearance of the tongue varies, sometimes coated a yellowish brown, sometimes red and dry, at other times it is thickly coated white. The condition of the bowels varies from constipation to diarrhœa, although sometimes they are quite regular. The urine is generally diminished in quantity, but shows higher color.

725. The sweating stage in some fevers is very marked, while in others there is very little moisture, but an evident decline of the hot stage, the skin becoming more natural and soft. The pulse is more compressible and less frequent, the kidneys act freely, respiration is natural, the pains subside, although there remains languor, lassitude and weariness, a preternatural sensibility to cold, an easily excited pulse, and a pale and sickly aspect to the countenance. The appetite has failed and the powers of digestion are still impaired.

726. **Domestic Management of Fevers.** It is proper to make a thorough study of the early, insidiously invading symptoms of fever, in order to understand what may be safely done. If it arises in consequence of malaria, the treatment must be suited to that circumstance. If from irritation of the bowels and improper articles of diet, then a mild cathartic is required. If there is much inflammation, a severe chill and strong reaction, then the treatment should be active. If the fever is of the congestive variety and attacks a feeble constitution, reaction imperfect, small and weak pulse, tendency to fainting, countenance pale, and deep pain in the head, establish warmth and sweating, and procure the services of a good physician.

727. As a general rule, it is proper to administer a cathartic, unless in typhoid fever, and for this object my Purgative Pellets answer the purpose, giving for a dose from four to six, according to the state of the bowels. If these are not at hand, a tea of sage and senna may be drank, until it produces a purgative effect. In nearly all fevers, I have found that a weak alkaline tea, made from the white ashes of hickory or maple wood, is useful, taken weak, three or four times daily, or if there be considerable thirst, more frequently. Some patients desire lemon juice, which has an alkaline base, and may answer all purposes."

Diaphoretic medicines are also indicated, and the use of my Extract of Smart-Weed will prove very serviceable. Drinking freely of pleurisy-root tea (§ 550), or of a strong decoction of boneset (§ 498) is very useful. The latter, if taken in sufficient quantities, may act very favorably as an emetic. After free sweating has been established, then it is proper to follow by the use of diuretic teas, such as spearmint and pumpkin seeds combined, or sweet spirits of nitre, in doses of twenty to thirty drops, added to a teaspoonful of the Extract of Smart-Weed, diluted with sweetened water.

728. To lessen the frequency of the pulse, fluid extract or tincture of veratrum (§ 597) or aconite (§ 596) may be given in water, every hour. During the intermission of symptoms, tonic medicines and a sustaining course of treatment should be employed. If the tongue is loaded and the passages from the bowels are fetid, a solution of sulphite of soda (§ 474) is proper; or, take equal parts of brewer's yeast and water, mix, and when the yeast settles, give a tablespoonful of the water every hour, as an antiseptic. Administering a warm, alkaline hand-bath to a fever patient every day, is an excellent febrifuge remedy, being careful not to chill or induce fatigue. If there is pain in the head, apply mustard to the feet; if it is in the side, apply hot fomentations.

729. The symptoms that indicate danger are, a tumid and hard abdomen, difficult breathing, offensive and profuse diarrhœa, bloody urine, delirium or insensibility. Favorable symptoms are, a natural and soft state of the skin, eruptions on the surface, a natural expression of the countenance, moist tongue, free action of the kidneys and regular sleep. If the domestic

treatment which I have advised does not break the force of the disease and mitigate the urgency of the symptoms, it will be safer to employ a good physician, who will prescribe such a course of treatment as the case specially requires. It is my aim to indicate what may be done before the physician is called, for many times his services cannot be obtained when they are most needed. Besides, if these attacks are early and properly treated with domestic remedies, it will oftentimes obviate the necessity of calling upon a physician. If, on the other hand, fevers are neglected and no treatment instituted, they become more serious in character and are more difficult to cure.

730. To recapitulate, my treatment recommends evacuation through nature's outlets—the skin, kidneys and bowels—maintaining warmth, neutralizing acidity, using antiseptics, tonics and the hand-bath, and the fluid extract or tincture of veratrum, or aconite, to moderate the pulse by controlling the accelerated and unequal circulation of the blood. It is a simple treatment, but if judiciously followed, will often prevent a run of fever, or materially modify its intensity and shorten its course.

FEVER AND AGUE. (INTERMITTENT FEVER.)

731. The description of fever already given applies well to this form of it, only the symptoms in the former stage are rather more distinct than in the other varieties. Weariness, lassitude, yawning and stretching, the bitter taste of the mouth, nausea, loss of appetite, the uneasy state of the stomach and bowels are more marked in the premonitory stages of intermittent fevers. The cold stage commences with a chilliness of the extremities and back, the skin looks pale and shriveled, the blood recedes from the surface, respiration is hurried, the urine is limpid and pale, sometimes there is nausea and vomiting, and towards the conclusion of the stage, the chilly sensations are varied with flushes of heat. The hot stage is distinguished by the heat and dryness of the surface of the body and the redness of the face; there is great thirst, strong, full and hard pulse, free and hurried respiration and increased pain in the head and back. The sweating stage commences by perspiration appearing upon the forehead, which slowly extends over the whole body, and soon there is an evident intermission of all the

symptoms. In the inflammatory variety of intermittent fever, all these symptoms are acute, short and characterized by strong reaction. The congestive variety is known by tedious chills, feeble reaction, and small, weak pulse. Gastric intermittents are marked by irritation of the stomach and bowels, and a yellow appearance of the white of the eye, and are the most frequent variety. Malignant intermittents are distinguished by an exaggeration of all the symptoms, as copious, fetid sweats, frequent hemorrhages, etc. They run their course rapidly, and most generally occur in warm climates.

732. **Causes.** The exciting cause is supposed to be malaria, a poisonous, gaseous exhalation from decaying vegetation and from swamps and marshes, which is absorbed into the system through the lungs.

733. **Treatment.** First administer an energetic cathartic—from four to six of the Purgative Pellets will generally be sufficient. Then if the patient feels cold, give him the Extract of Smart-Weed in pleurisy-root or pennyroyal tea. Then follow, during the intermission of symptoms, with antiperiodics, administering the Golden Medical Discovery as directed in ¶499. Administer a hot foot-bath; also, bathe the surface of the body in water rendered alkaline by the addition of salæratum or baking soda. If the attack is very severe and is not relieved by this treatment, a physician should be summoned to attend the case.

BILIOUS FEVER. (REMITTENT FEVER.)

734. The distinction between *intermittent* and *remittent* fever does not consist in a difference of origin. In the former disease the symptoms completely *intermit*; in the latter they only partly *remit*.

735. **Treatment.** Administer an alkaline sponge-bath; give the Extract of Smart-Weed and sweating teas—as ginger, catnip, etc. Use my Purgative Pellets to act upon the bowels, and when the time for a remission of symptoms approaches, give the Golden Medical Discovery, as directed for fever and ague. To equalize and control the circulation, tincture or fluid extract of veratrum (¶597) should be administered. If the fever subsides and perspiration occurs, it is an indication favorable to the recovery of the patient. Should the

course of treatment here advised not promptly arrest the disease, the family physician should be summoned.

CONTINUED FEVER.

736. The symptoms of these fevers do not intermit and remit, but their phenomena *continue* without any such variation. They are usually characterized by greater prostration of the system, and are called *putrid* when they manifest septic (destructive) changes in the fluids; *congestive* when the blood accumulates upon the internal organs, and *malignant* when they speedily run to a fatal termination. *Typhoid* and *typhus* fever belong to the class of continued fevers. I will not advise treatment for these more grave disorders which should always, for the safety of the patient, be attended by the family physician, except to call attention to some simple means that may be employed in the initial stage of the disease, or when a physician's services cannot be promptly secured.

TYPHOID FEVER. (ENTERIC FEVER.)

737. In typhoid fever there is disease of the intestines and mesenteric glands, very liable to terminate in ulceration. This diseased condition of the bowels distinguishes this fever from all others, and is readily detected by sensitiveness to pressure, especially on each side of the abdomen. The early disposition to diarrhœa is another characteristic symptom of it, and there is also no remission of febrile indications, as in bilious fever. This dangerous fever is clearly marked by all these distinguishing symptoms and its remedial treatment should at once be confided to the family physician.

TYPHUS FEVER.

738. In typhus fever there is more capillary congestion than in typhoid, consequently the face in the early stage presents a dusky or more dingy hue. The white of the eye is congested and looks red, the countenance is expressionless, there is delirium also, and the tongue is loaded with a darker coating than in typhoid fever. Typhus fever is contagious, whereas typhoid is not so likely to be communicated. Typhoid fever is characterized by abdominal disease, whereas in typhus there is none. I

would not recommend any treatment except referring to that indicated under general directions, but advise the early attendance of the family physician.

ERUPTIVE FEVERS.

739. Eruptive fevers are characterized by a rash, or a more distinct vesicular or pustular eruption, as in chicken-pox or small-pox. Each is a distinct species of fever, and all are capable of being communicated except those called rose-rash, and erysipelas.

SCARLET FEVER. (SCARLATINA.)

740. This fever takes its name from the scarlet color of the eruption on the surface of the body. Sometimes it is comparatively mild and is then called *Scarlatina Simplex*; when it is accompanied by a sore throat it is termed *Scarlatina Anginosa*; and when the disease is intense and dangerous, it is called *Scarlatina Maligna*. Three distinct stages may be noticed: (1), Invasion; (2), Eruption; and (3), Desquamation. In the stage of invasion there is pain in the head, increased heat of the skin, redness and soreness of the throat, and sometimes nosebleed, diarrhœa or vomiting. The average duration of this stage is twenty-four hours. The eruptive stage generally begins on the second day, though sometimes it is delayed longer, and the scarlet rash rapidly diffuses itself over the whole body. The redness is vivid and has been compared to the appearance of a boiled lobster. The stage of eruption reaches its maximum of intensity on the third day, and it is important that it does not recede. Redness of the tonsils and throat is one of the early symptoms which precedes any cutaneous eruption. The tongue also is finely spotted with numerous red points which mark its papillæ.

741. The thirst is urgent, there is no appetite, and vomiting and mild delirium are common. This stage continues from four to six days, though sometimes it is longer. Desquamation (scaling off) of the skin commences at the decline of the eruption, in the form of minute, branny scales. The duration of this stage is indefinite, and may end in five or six or may continue ten or twelve days.

742. If the inflammation in the throat is very severe, it may

terminate in suppuration, which may also occur in the glands of the neck, and sometimes the inflammation extends to the lips, cheeks and eyelids. Gangrene within the throat is rare. The disease is easily communicated, and the attack will usually follow the exposure in two or three days. It occurs most frequently in the third and fourth years of life. There is no other disease so simple, and yet so often liable to prove fatal, as scarlet fever; and for this reason I shall advise the attendance of the family physician.

743. Domestic treatment may be given as follows, until the physician can be obtained. Warm alkaline baths are proper, and catnip, pennyroyal or pleurisy-root tea, containing one teaspoonful of my Extract of Smart-Weed, should be given, to drive the rash to the surface. A mild alkaline drink is suitable to allay the thirst, nausea and fever. A tepid bath, twice a day, is good. In some cases the wet sheet pack is invaluable. Three drops of the fluid extract of belladonna in two ounces of water, is said to be a preventive of scarlet fever. A teaspoonful should be given twice a day. I would again remind parents that this disease is one that *requires* the attendance of the family physician, and great care should be exercised during recovery, that no bad results follow it.

SMALL-POX. (VARIOLA.)

744. There are a variety of eruptive fevers, each one of which is distinct and propagated by causes reproduced within the body. The most formidable of these communicable diseases is small-pox, and this cannot be distinguished from others of the class before the development of its vesicles, which are *granular*, hard and deep-seated. There are two varieties of this disease, known as *confluent* and *distinct* variola; in the former, the vesicles run together, in the latter, they are separate.

This fever has three stages. The first is that of *invasion*, distinctly marked by a chill or a series of chills, which alternate with flushes of heat. In this stage the tongue becomes coated, there is also nausea and vomiting, pain in the limbs, back and particularly in the loins, the latter symptom being of diagnostic importance. This stage continues about two days, and if the symptoms are mild, it may be expected that the disease will be comparatively mild, and of the distinct variety.

Stage of Eruption. The eruption begins to appear on the skin, generally on the third day following the attack, though in the throat and mouth may be discovered round, whitish or ashy spots several hours previous to the manifestation of vesicles on the surface of the body. These are first seen on the face and neck, then on the trunk and upper extremities, and lastly, on the lower extremities. The eruption at first appears in the form of small red or purple spots, which change the texture of the skin by becoming more hard, pointed and elevated. On the fifth day of the eruption they attain their full size, being softened and depressed in the center, and hence are called *umbilicated*. Now a change takes place, and the vesicles fill with matter and become pointed and there is a rise in the fever.

The stage of suppuration commences thus: The pulse quickens, the skin becomes hotter, and in many cases of the confluent variety, swelling of the face, eyelids and extremities occurs. Frequently there is passive delirium in this stage, and if diarrhœa sets in, it is an unfavorable sign. The duration of this stage of the eruption is four or five days.

The stage of desiccation, which means the drying of the pustules, commences between the twelfth and fourteenth day of the disease. In the confluent variety patches of scab cover all the space occupied by the disease, and sometimes the whole face looks hideous in this scaly mask. The skin exhales a sickening odor, and as the scabs fall off, there is great liability to leave "pock-marks." Small-pox is attended with a great deal of danger, as one out of four cases terminates fatally.

745. **Treatment** should have reference to determining the eruption to the surface. If there be thirst, allow cold drinks, ice-water or lemonade. Bathing the surface with cold water, allowing plenty of fresh air, using disinfectants in the room and taking antiseptic medicine internally, is proper. Add one part carbolic acid to six parts glycerine, mix from two to three drops of this with an ounce of water, and when thus prepared, take teaspoonful doses frequently. A few drops of carbolic acid and glycerine may be rubbed with lard and the surface anointed with it to prevent pitting. The malady is so grave that it should be intrusted to the care of the family physician.

VARIOLOID. (MODIFIED SMALL-POX.)

746. Small-Pox is materially modified by inoculation, and also by vaccination; the latter generally serves as a complete protection against it. Varioloid is neither more nor less than variola, modified. Inoculation is produced by using the matter from a small-pox patient and thus infecting another's blood with the disease. Inoculated small-pox is much less severe. The pocks rarely exceed one hundred; there is less constitutional disturbance; very little or no pitting of the skin; and it serves as a complete protection against small-pox. When the vaccine matter of cow-pox does not completely exempt the person from small-pox, the resulting illness is also called varioloid. A person suffering from either of these modifications of the disease will, by contagion, communicate to another genuine small-pox. The *treatment* is the same as that recommended in variola.

VACCINIA. (Cow-Pox.).

747. The important discovery of vaccination is due to Dr. Jenner, who ascertained that when the cow was affected by this disease and it was then communicated to man, that the disease was rendered very mild and devoid of danger, and at the same time it proved a very complete protection against small-pox. Like most other valuable discoveries introduced to the world, it encountered bitter prejudice and the most unfair opposition. Now its inestimable value is generally known and admitted.

In a few cases, where the quality of the vaccine virus has deteriorated, its effect is only to slightly modify small-pox, and then the disease resembles that caused by inoculation. The operation of infecting the blood with the *kine virus* is called *vaccination*. All that we know is that when the cow becomes affected with this disease, and it is then transferred to man, it loses its severity and serves as a protection against small-pox. In a great majority of cases this protection is absolute, and only in a small minority does it leave them susceptible to small-pox, materially modified. The protection it affords against small-pox is found to diminish after the lapse of an indefinite number of years, and hence it is important to be re-vaccinated once or twice, say after an interval of five years. Between the second and third months of infancy

is the best period for vaccination, and the place usually selected is the middle of the arm above the elbow-joint.

CHICKEN-POX. (VARICELLA.)

748. Chicken-Pox is an eruptive disease which affects children, and occasionally adults. It is attended with only slight constitutional disturbance, and is therefore neither a distressing nor dangerous affection. The eruption first appears on the body, afterwards on the neck, the scalp, and lastly on the face. It appears on the second or third day after the attack, and is succeeded by vesicles containing a transparent fluid. These begin to dry on the fifth, sixth or seventh day. This disease may be distinguished from variola and varioloid by the shortness of the period of invasion, the mildness of the symptoms and the absence of the deep, funnel-shaped depression of the vesicles, so noticeable in variola.

749. **Treatment.** Ordinarily very little treatment is required. It is best to use daily an alkaline bath, and as a drink, the tea of pleurisy-root, catnip or other diaphoretics, to which is added from half to a teaspoonful of my Extract of Smart-Weed. If the fever runs high, a few drops of aconite in water will control it.

MEASLES. (RUBEOLA.)

750. This would be a disease of less severity and importance than the other eruptive fevers, were it not sometimes followed by serious results. The stage of invasion is marked by the symptoms of a common cold, sneezing, watery eyes, discharge from the nostrils, dry cough, and the patient complains of being chilly. This stage may last four days. Then follows an eruption of red dots or specks, which momentarily disappear on pressure. On the fourth day of the eruption the redness of the skin fades, the fever diminishes and the vesicles dry into scales or little flakes. The eyes may be inflamed and the bowels may be quite lax at this stage.

751. **Treatment.** The great object in treatment is to determine the disease to the surface. To effect this, sweating teas are proper. The free use of my Extract of Smart-Weed is recommended, and the skin should be bathed every day with a

warm, alkaline bath. Sometimes, when warm drinks fail in bringing out the eruption, drinking largely of cold water and keeping warmly covered in bed, will accomplish it.

752. **False Measles** (*Rose-Rash*) is an affection of very little importance and may be treated as we would a case of ordinary measles.

ERYSIPELAS.

753. There are few adult persons in this country who have not, by observation or experience, become somewhat familiar with this disease. Its manifestations are both constitutional and local, and their intensity varies exceedingly in different cases. The constitutional symptoms are usually the first to appear and are of a febrile character. A distinct chill, attended by nausea and general derangement of the stomach is experienced, followed by febrile symptoms more or less severe. There are wandering pains in the body and sometimes a passive delirium exists. Simultaneously with these symptoms the local manifestation of the disease appears. A red spot develops on the face, the ear, or other part of the person. Its boundary is clearly marked and the affected portion slightly raised above the surrounding surface. It is characterized by a burning pain and is very sensitive to the touch. It is not necessary for the benefit of the popular reader that I stop to distinguish between the different varieties of this malady. The distinctions made are founded chiefly upon the *depth* to which the morbid condition extends, and not on any difference in the *nature of the affection*.

Suppuration of the tissues involved is common in the severer forms. Should the tongue become dark and diarrhœa set in, attended with great prostration of the patient's strength, the case is very serious, and energetic means must be employed to save life. A retrocession of the inflammation from the surface to a vital organ is an extremely dangerous condition.

The disease is not regarded as contagious, but has been known to become epidemic.

754. **Treatment.** The treatment during the initial stage of this disease should correspond to the general principle laid down for the treatment of fever. The spirit vapor-bath, with warm diaphoretic teas, or my Compound Extract of Smart-Weed

may be given to favor sweating. The whole person should be frequently bathed in warm water rendered alkaline by the addition of salæratuſ or ſoda. The bowels ſhould be moved by a full doſe of my Purgative Pellets. Fluid extract of veratrum (§ 597) in ſmall and frequent doſes, will beſt control the fever. The ſpecific treatment—that which antidotes the poiſon in the blood, conſiſts in adminiſtering five drop doſes of the muriated tincture of iron (§ 618) in one teaſpoonful of my Golden Medical Diſcovery, every three hours. As a local application, the inflamed ſurface may be covered with cloths wet in the mucilage of ſlippery elm; or equal parts of ſweet oil and ſpirits of turpentine, mixed and painted over the ſurface, is an application of unſurpaſſed efficacy.

DIPHThERIA.

755. This is an exceedingly grave conſtitutional malady, characterized by a rapid breaking down of the powers of life, together with a peculiar affection of the throat, in which a diſpoſition to the formation of false membranes is a prominent feature. The formation of theſe membranes, however, in this diſeaſe, is not limited to the throat, but may occur on mucoſ ſurfaces elſewhere. In this diſeaſe the local affection is but the expreſſion of a ſpecific morbid condition of the ſyſtem, which cloſely reſembles that preſent in the ſeverer forms of ſcarlet fever.

756. **Cauſe.** This is eminently an epidemic diſeaſe, and like other epidemics, has its ſpecial cauſes, though precisely what theſe are, has not been determined. It is alſo conſidered contagious.

757. **Symptoms.** The ſymptoms vary in different caſes. In ſome the diſeaſe comes on gradually, while in others it is malignant from the firſt. The throat feels ſore, the neck is ſtiff and a ſenſe of languor, laſſitude, and exhaustion pervades the ſyſtem. Sometimes a chill is experienced at the outſet. Febrile diſturbance, generally of a low typhoid character, ſoon maniſeſts itſelf. The ſkin is hot; there is intense thirſt; the pulse is quick and feeble, ranging from 120 to 150 per minute. The tongue is generally loaded with a dirty coat, or it may be bright red. The odor of the breath is characteristic, and peculiarly

offensive, and there is difficulty of swallowing and sometimes of breathing. Vomiting is sometimes persistent. If we examine the throat, we find more or less swelling of the tonsils and surrounding parts, which are generally bright, red, and shining, and covered with a profuse, glairy, tenacious secretion. Sometimes the parts are of a dusky livid hue, and sometimes, though rarely, palid. The false membrane, a peculiar tough exudation, soon appears and may be seen in patches, large or small, or covering the entire surface from the gums back as far as can be seen, its color varying from a whitish yellow to a gray or dark ashen tint. When it is thrown off, it sometimes leaves a foul, ulcerating surface beneath. The prostration soon becomes extreme, and small livid spots may appear on the surface of the body. There may be delirium, which is, in fatal cases, succeeded by stupor (coma). The extremities become cold; diarrhœa, and in some cases convulsions, mark the approach of death. Sometimes the patient dies before the false membrane forms.

758. **Treatment.** The extremely dangerous character of this disease demands that the service of a skillful physician be obtained at once; and that his efforts should be aided by the most thorough hygiene—good ventilation, bathing, supporting diet, etc. Prior to the arrival of the physician, lose no time in using the spirit vapor-bath (§ 630) and hot foot-bath (§ 640). If the former is impracticable, the latter is not. Get the patient into a perspiration, and maintain it. For this purpose, small doses of my Compound Extract of Smart-Weed may be given in some diaphoretic infusion, as pleurisy-root (§ 550) or catnip (§ 549), repeated as often as the case demands. Also give small doses of veratrum (§ 597) every hour, and thus modify the circulation. Control the vomiting and allay the thirst by allowing the patient to suck small pieces of ice every five or ten minutes. Hot fomentations (§ 649) should be applied to the throat. If the physician does not take charge of the patient by this time, the throat should be swabbed out with the following: Take carbolic acid one part, glycerine six parts, water six parts; also add of this mixture twenty drops to a glass of water, and give of it, internally, one teaspoonful every two hours. Inhaling steam from water to which a few drops of the oil of peppermint has been added, is often serviceable, although some

practitioners regard the vapor of alcohol as preferable. The use of blisters, caustics, active purges, mercurials or bleeding, is generally condemned. Throughout the whole course of treatment, the strength must be supported by the most nourishing diet, as well as by tonics (§ 607) and stimulants (§ 600). Beef tea, milk, milk punch, quinine and brandy, should be freely administered. Although I have given a very complete course of treatment, and one which has proved eminently successful in this disease, yet I would not advise any non-professional persons to rely upon any course of treatment not under the observation and direction of a competent physician, when one can be had.

QUINSY. (TONSILITIS.)

759. This is an acute inflammation of the tonsils, which generally extends to, and involves adjacent structures, and is attended with general febrile disturbance. Its duration varies from four to twenty days. It sometimes terminates by a gradual return to health (resolution); or by the formation of matter within the gland (suppuration). When this latter is the case, the swelling sometimes becomes so great before it breaks, as to require lancing.

760. **Causes.** It most frequently results from a cold. In some persons there is a predisposition to it, and the individual is liable to recurring attacks. Persons of a scrofulous diathesis are more liable to it than others.

761. **Symptoms.** Difficulty of swallowing, soreness and stiffness of the throat, are the first monitions of its approach. There is fever, quick, full pulse, and dryness of the skin; the tongue is furred, and the breath offensive. The tonsils are intensely red, swollen and painful, the pain often extending to the ear. Sometimes but one tonsil is affected, though generally both are involved. In severe cases the patient cannot lie down, in consequence of the difficulty of breathing.

762. **Treatment.** In the early stage of the disease the spirit vapor-bath (§ 630) is invaluable. The sweating which it produces should be kept up by the use of my Compound Extract of Smart-Weed in some diaphoretic infusion. Hot, wet packs to the throat, covered with dry cloths, are useful. The inhalation of the hot vapor of water or vinegar, or peppermint and water,

is beneficial. A cathartic should be given at night. When the disease does not show a disposition to yield to this treatment, the services of a physician should be obtained. When matter is formed in the tonsil, which may be known by the increased swelling and the pointing of the abscess with a yellowish spot, the services of a physician will be required to lance it.

ENLARGED TONSILS.

763. Chronic enlargement of the tonsils, as shown in Fig. 146,

Fig. 146.



A A.—Enlarged Tonsils. B.—Elongated Uvula.

A A, is an exceedingly common affection. It is most common to those of a scrofulous habit. It rarely makes its appearance after the thirtieth year, unless it has existed in earlier life, and been imperfectly cured. Both tonsils are generally, though unequally, enlarged. The person affected with this disease is extremely liable to sore throat, and suffers from the most trivial circumstances; exposure to cold, suppression of perspiration, or derangement of the

digestive apparatus being sufficient to provoke inflammation.

764. **Causes.** Repeated attacks of quinsy, scarlet fever, diphtheria, or scrofula, and general impairment of the system, predispose the individual to this disease.

765. **Symptoms.** The voice is often husky, nasal or guttural, and disagreeable. When the patient sleeps, a low moaning is heard, accompanied with snoring and stentorious breathing, and the head is thrown back so as to bring the mouth on a line with the windpipe, and thus facilitate the ingress of air into the lungs. When the affection becomes serious it interferes with breathing and swallowing. The chest is liable to become flattened in front and arched behind, in consequence of the difficulty of respiration, thus predisposing the patient to pulmonary disease. On looking into the throat the enlarged tonsils may be seen, as in the figure. Sometimes they are so greatly increased in size that they touch each other.

766. **Treatment.** The indications to be carried out in the cure of this malady are:

- (1.) To remedy the constitutional derangement.
- (2.) To remove the enlargement of the tonsil glands.

767. . The successful fulfillment of the first indication may be readily accomplished by attention to hygiene, diet, clothing, and the use of my Golden Medical Discovery, together with small daily doses of my Pleasant Purgative Pellets. This treatment should be persevered in for a considerable length of time after the enlargement has disappeared, to prevent a return.

768. To fulfill the second indication, astringent gargles may be used. Infusions of witch-hazel (§ 518) or cranesbill (§ 519) answer well, used during the day. The following is unsurpassed: Take of iodine one drachm, iodide of potash four drachms, pure soft water two ounces—mix. Apply this to the enlarged tonsils twice a day, with a probang or soft swab, being careful to paint them each time. Some considerable length of time, and a persevering use of the treatment, both internal and local, is necessary for their reduction and restoration to a healthy condition.

769. Sometimes the enlarged tonsils take on calcareous (chalky) degeneration; in this case nothing but their removal by a surgical operation will be effectual. This can readily be accomplished by any competent surgeon. I have operated in a large number of cases, and have never met with any unfavorable results.

ELONGATION OF THE UVULA.

770. Chronic enlargement or elongation of the uvula (palate), as shown at "B," Fig. 146, may arise from the same causes as enlargement of the tonsils. It subjects the individual to a great deal of annoyance by dropping into and irritating the throat. It causes tickling and frequent desire to clear the throat; change, weakness, or entire loss of voice; difficulty of breathing; frequently giving rise to the most persistent and aggravating cough.

771. **Treatment.** The treatment already laid down for enlarged tonsils, with which affection of the uvula is so often associated, is generally effectual. When it has existed for a long time and does not yield to this treatment, it may be removed by any competent surgeon.

ANÆMIA.

772. When the blood is deprived of the ordinary amount of red corpuscles, it then is anæmic, characterized by every sign of debility. A copious hemorrhage in consequence of a cut, or other serious injury, will lessen the quantity of blood and produce anæmia. After sudden blood-letting, the volume of the circulation is quickly restored by absorption of fluid, but the red corpuscles cannot be so readily replaced, so that the blood is poorer by being more watery. This is only one way in which the blood is impoverished.

The blood may be exhausted by a drain upon its richness in consequence of hard and prolonged study. Severe mental employment consumes the red corpuscles, leaving the blood languid, skin cool and pale, and the extremities moist and cold.

773. Anæmia may arise from lack of exercise, or it may be occasioned by mental depression, anxiety, disappointment, trouble, acute excitement of the emotions or passions, spinal irritation, in fact, there are many special relations existing between the red globules of the blood and the various states of the mind and the nervous system. The latter depends directly upon the health and quantity of these red globules for its ability to execute its functions.

774. Anæmia may arise in consequence of low diet, or because the alimentary organs do not properly solve the food, or when there is not sufficient variety of edibles. No matter how anæmia is occasioned, whether by labor and expenditure, by hemorrhages, lead poisoning, deprivation of food, indigestion, mal-assimilation, frequent child-bearing, or lactation, the condition of the blood consists in a material diminution of its red globules.

775. The diagnostic symptoms of anæmia are palor of the face, lips, tongue and general surface, weakness of the vital organs, hurried respiration on slight exercise, swelling or puffiness of the eyes, bellows-like murmur of the heart, etc.

776. This disorder of the blood tends to develop low inflammation, dropsical effusion, tubercles, Bright's disease, cancers, derangements of the liver, pulmonary diseases, diarrhœa, leucorrhœa, and is a precursor of low protracted fevers. It contributes largely to the activity of other affections, providing they are in

existence, and often it is found associated with Bright's disease, cancer, and lung difficulties.

777. **Treatment.** FIRST—Prevent all unnecessary waste and vital expenditure.

SECOND—Place the patient under favorable circumstances for recovery, by regulating the exercise and clothing, entertaining the mind, and furnishing plenty of good air.

THIRD—Prescribe such a nutritious diet as will agree with the enfeebled condition of the patient.

FOURTH—Regular habits must be established in regard to meals, exercise, recreation, rest and sleep.

FIFTH—The use of tonics and stimulants, as much as the stomach will bear, should be encouraged. Bathe the surface with a solution of a drachm of quinine in a pint of whisky.

SIXTH—Iron (§ 618), in some form, is the special internal remedy in anæmia. Meantime, it is proper to treat the patient with gentle manual friction, rubbing the surface of the body lightly and briskly with the warm, dry hand, which greatly stimulates the circulation of the blood. Anæmia occurs more frequently with the female than with the male, because her functions and duties are more likely to give rise to it.

APNŒA.

778. Apnœa (a deficiency of breath), or short, hurried, difficult respiration, is occasioned by certain conditions of the blood. The red globules are sometimes called oxygen carriers, and it is undoubtedly true that they do absorb and transport such gases as oxygen, nitrogen and carbonic acid. By the agency of the lungs, they receive and impart gases, (§ 75). When this interchange of æriform elements is not brought about, the blood is not changed from venous to arterial and is incapable of sustaining life. This morbid condition is termed *asphyxia*. We often read of persons going into wells where there are fixed gases, or remaining in a close room where there are live coals generating carbonic acid gas, and thus becoming asphyxiated—dying for want of oxygen.

779. Deficiency of oxygen is the cause of apnœa, and sometimes the red globules themselves are so few, worn out and destroyed, that they cannot carry enough oxygen, and the consequence

is that the patient becomes short of breath and when a fatal degeneration of the globules ensues, he dies of asphyxia. Many a child grows thin and wan and continues to waste away, the parents little dreaming that the slow consumption of the red globules of the blood is the cause which is undermining the health. Sometimes this disease is the result of starvation, irregular feeding, improper diet, want of care, and at other times, want of fresh air, proper exercise and sunlight.

780. **Treatment.** The first essential to success in the treatment of this disease, is the removal of the exciting cause. Exercise in the outdoor air and sunlight, with good nutritious food and well ventilated sleeping apartments, are of the greatest importance. The bitter tonics, as hydrastin (§ 613), with pyrophosphate of iron to enrich the blood and build up the strength, must not be omitted.

LEUCOCYTHÆMIA.

781. This long word, once seen, always remembered, means white cell blood; that is, the disease consists in the multiplication of white corpuscles, so that relatively they become more numerous than they ought to be. In health, these white corpuscles, which are nearly twice the size of the red, should exist only in the proportion of one, to one or two hundred, of the red corpuscles. These colorless corpuscles increase when there is disease of the lymphatic glands, and whether this is the cause of their increase or perversion is not known.

782. They have been found abundant in the blood in diseases of the spleen and of the liver. Diarrhœa usually attends this complaint, together with difficult breathing, loss of strength, gradual decline, fever, exhaustion, diminution of vital forces, and finally death. The recovery of a well-marked case of this disease is very doubtful. Its average duration is about one year.

DROPSIES.

783. *Transudation* is the passage of fluid through the tissue of any organ, without changing its liquid state, while *exudation* means, medically, the passage of matter that coagulates and gives rise to solid deposits. When transudations are unhealthy, they may accumulate in serous cavities or in cellular structures, and constitute *dropsy*. Exudation is the result of inflammation,

and the product effused coagulates and becomes the seat of a new growth of tissue. Exosmosis means going from within outward, and is a process constantly taking place in health; while transudation takes place because the blood is watery and the tissues are feeble and permeable, allowing the serum and watery elements of the vital fluid to pass into certain cavities, where they accumulate.

784. The cause of dropsies may be low diet, insufficient exercise, indigestion, hemorrhages, wasting diseases, in fact, any thing that impoverishes the blood and increases the relative amount of serum. The tardy circulation of blood in the veins, or its obstruction in any way, is a condition highly favorable to the development of dropsy.

785. General dropsy is called *anasarca*, and is readily distinguished by bloating or puffiness of the skin. It is also called *œdema*. This soft swelling yields under the finger, is pale, without pain, and preserves the impression of the finger for some time. The *œdema* appears first in the lower extremities, next in the face, and from thence extends over the body.

786. General dropsy is commonly due to a morbid and weak condition of the blood, and this may be the result of *albuminuria*, a disease of the kidneys, by which albumen is carried off in the urine: hence its name. As the character of this affection was not understood before the writings of Bright, it was named after him, and is called Bright's Disease. This difficulty is frequently the sequel of scarlatina; that is, succeeds its termination, most generally the second or third week after the date of convalescence. Hence, the utmost care should be taken of a patient recovering from scarlatina, that he does not heat himself or expose himself to cold, and the same caution is applicable during convalescence from measles, erysipelas and rheumatism. Dropsies may be general, as in *anasarca*; or local, as dropsy of the heart, called *Cardiac* dropsy; dropsy of the peritoneum, the serous membrane which lines the abdominal cavity, and called *Ascites*; dropsy of the chest, called *Hydrothorax*; dropsy of the head, called *Hydrocephalus*; dropsy of the scrotum, called *Hydrocele*.

787. Dropsy is not therefore properly a disease, but the result of previously existing conditions, which may be illustrated

thus: suppose the existence of disease of the valves of the heart, which obstruct the free flow of blood and thus retard its circulation; or suppose dilation of the heart which involves also weakness and diminished power to circulate the blood. In consequence the pulse grows small and weak, and the patient cannot exercise or labor as usual. By and by the lower limbs begin to swell, then the face and body; finally the skin looks dusky, the appetite is impaired, the kidneys become diseased, there is difficulty in breathing, and the patient, we say, dies of dropsy. Yet, dropsy was the result of a heart difficulty which retarded the circulation and enfeebled the system, and in this way the disease took its rise.

788. **Treatment.** As has already been shown, dropsy is but a symptom of various morbid conditions existing in the system, and any treatment to be radically beneficial must therefore have reference to the diseased conditions upon which the dropsical effusion, in each individual case, depends. These are so various and many times so obscure, as to require the best diagnostic skill possessed by the experienced specialist, to detect them. There are, however, a few general principles that are applicable to the treatment of nearly all cases of dropsy. Nutritious diet, frequent alkaline baths to keep the skin in good condition and favor depuration through its pores, and a general hygienic regulation of the daily habits, are of the greatest importance. There are also a few general remedies that will prove more or less beneficial in nearly all cases. I refer to diuretics (§ 558) and hydragogue cathartics (§ 533). The object sought in the administration of these is the evacuation of the accumulated fluids through the kidneys and bowels, thus giving relief. Of the diuretics, queen of the meadow, buchu and saltpetre will generally operate well. As a cathartic, my Purgative Pellets accompanied with a teaspoonful or two of cream of tartar, will prove serviceable. Beyond these general principles of treatment it would be useless for me to attempt to advise the invalid suffering from any one of the many forms of dropsy. The specialist, skilled by large experience in detecting the exact morbid condition which causes the watery effusion and accumulation, will select his remedies to meet the peculiar indications presented by each individual case. Sometimes the removal of the watery accumulation by tapping becomes necessary, in order to afford relief and

give time for remedies to act. I have found it necessary to perform this operation very frequently in cases of *hydrocele* (dropsy of the scrotum), and also quite often in cases of abdominal dropsy. The chest has also been tapped and considerable quantities of fluids drawn off, and this has been followed by prompt improvement and final cure.

CASES TREATED.

789. **Case I.** Mr. J. S., a Canadian gentleman, aged 68, applied at the World's Dispensary in May, 1874, for examination and treatment. He had been dropsical for over two years, and had become so badly affected as to be unable to lie down at night. His legs were so filled with water and enlarged as to render it almost impossible for him to walk. There was a general dropsy of his whole system. The least exertion was attended by the greatest difficulty of breathing. He had been under the treatment of several eminent general practitioners of medicine in Canada but found no relief. They were unable to discover the real cause of his ailment, but to the specialist who has charge of this class of diseases at the World's Dispensary, and who annually examines and treats hundreds of such cases, it was at once apparent that the dropsy was caused from a weakened condition of the heart, disqualifying it for properly circulating the blood. He was put upon a tonic and alterative course of treatment, which also embraced the use of such medicines as have been found to exert a specific tonic action upon the muscular tissues of the heart. He improved so rapidly that in less than two months he was able to lie down and sleep soundly all night. The bloating all disappeared, his strength improved, and in three months more he was discharged perfectly cured.

790. **Case II.** Henry C. F., aged 42; consulted me by letter in February, 1872, stating that he was troubled with general bloating which had made its appearance gradually and was attended by general debility and other symptoms that have been enumerated as common to general dropsy. He had been under the treatment of several home physicians without receiving any benefit; had steadily grown worse until he felt satisfied that if he did not soon get relief he could not live very long. He was requested to send a sample of his urine for examination, as I had

suspicious, from the symptoms which he gave, that the cause of his dropsy was *albuminuria*, or Bright's disease of the kidneys. On examination of the urine my conjectures were shown to have been well founded, for albumen in very perceptible quantities was found to be present in this excretion. I had, about this time, come into possession of a remedy said, by very good authority, to be a specific in degeneration of the kidneys when not too far advanced, and I determined to test it upon this well-marked case. I accordingly prescribed it, together with other proper tonics and alteratives, at the same time giving the patient important hygienic advice which must be complied with if success is attained in the management of this very fatal malady. My patient gradually improved and in a few month's time was restored to perfect health, which he has continued to enjoy ever since. From my subsequent experience, embracing the treatment of quite a large number of cases of Bright's disease of the kidneys, I am satisfied that it is, in its early stage, quite amenable to treatment.

791. **Case III.** Erastus C. H., aged 35, single, applied at the World's Dispensary in December, 1874, and consulted me for what he supposed to be enlargement of the testicles. The scrotum (page 218) *was as large as his head*, and it was with difficulty that he could conceal the deformity from general observation. The disease was immediately recognized by the attending surgeon as dropsy of the scrotum. The liquid was promptly drawn off by tapping and a stimulating injection made into the scrotum to prevent re-accumulation. I mention this case only because it is one among a very large number who have consulted me supposing that they were suffering from enlargement of the testicles, cancer or other morbid growth within the scrotum, when a slight examination has shown the difficulty to be hydrocele, a disease that is speedily and certainly cured by tapping, with a little after treatment. The operation is perfectly safe and almost entirely painless.

792. **Case IV.** Miss J. C., aged 24, consulted me by letter in November, 1873, enumerating a long list of symptoms which clearly indicated abdominal dropsy, resulting from suppression of the menses. A well regulated hygienic treatment was advised, and medicines calculated to restore the menstrual function by gradually toning up and regulating the whole system,

were forwarded to her by express. Four month's treatment resulted in her perfect recovery. Cases like this latter are very common and generally yield quite readily to proper management. No harsh or forcing treatment for restoring the menstrual function should be employed, as it will not only fail in accomplishing the object sought, but is almost sure to seriously and many times irreparably injure the system. The most difficult cases that I have had to deal with, have been those which had been subjected by other physicians to the administration of strong emmenagogues (§ 574) in the vain effort to bring on the menses.

RHEUMATISM.

793. Prominent among constitutional diseases is the one known as *rheumatism*. It is characterized by certain local symptoms or manifestations in fibrous tissues. This term has been applied to neuralgic affections and to *gout*, but it differs from each in several essential particulars. Rheumatism may be divided into (1) *Acute*, (2) *Chronic*, (3) *Muscular*.

794. **Acute Articular Rheumatism.** Acute or inflammatory rheumatism implies an affection of the articulations or joints. It usually commences with a sudden attack; sometimes pain or soreness in the joints precedes the disclosure of the disease. The symptoms are, pain in the joints, tenderness, increased heat, swelling and redness of the skin. The pain varies in its intensity in different cases, and is especially excited by the movement of the affected parts. Swelling of the joints occurs, especially those of the knee, ankle, wrist, elbow, and the smaller joints of the hands and feet. The swelling and redness are generally in proportion to the acuteness of the attack. Acute articular rheumatism is always accompanied with more or less fever. Sweating is generally a prominent symptom, and usually occurs during the night. The appetite is impaired, the tongue is coated, the bowels constipated, or there is diarrhœa.

795. **The Duration of this Disease.** Unlike fevers, its course is marked by fluctuations; frequently after a few days the pain subsides, the fever disappears, and convalescence is apparently established, when suddenly, all the symptoms are renewed with even greater intensity than before. This disease rarely proves fatal, unless it is translated to the heart.

796. **Causes.** Rheumatism is frequently supposed to be occasioned by a suppression of the functions of the skin, and is generally attributed to the action of cold upon the surface of the body. But it is probable that this acts only as an exciting cause, and that it is wholly a disease of the blood. This form of rheumatism usually occurs between the ages of fifteen and thirty, and prevails most extensively in changeable climates. Acute articular rheumatism seldom terminates in the chronic form.

797. **Chronic Articular Rheumatism.** Articular rheumatism, in the subacute or chronic form, is frequently observed in medical practice. The symptoms are pain and more or less swelling of the joints, although not of as grave a character as in acute rheumatism. There is frequently an absence of increased heat and redness. As in the acute form, so in this, the different joints are liable to be affected successively and irregularly, until after a time the disease becomes fixed in a single joint, and the fibrous tissues entering into the ligaments, tendons, etc., are liable to be affected. The appetite, digestion and nutrition, are often good, and in mild cases patients are able to pursue their daily vocations. The disease is supposed to be the same as in the acute form, only it is milder and, strange to say, more persistent. A diseased condition of the blood is supposed to be involved in both instances, but this morbid state is less extended and at the same time more obstinate in the chronic, than in the acute form. Subacute articular rheumatism is not always chronic, and may disappear in a shorter time than the acute form. Chronic articular rheumatism is not generally fatal, but danger lies in the liability to permanent deformities.

798. **Muscular Rheumatism.** This affection is closely allied to *neuralgia*, and may properly be called *myalgia*. It exists under two forms, viz: acute and chronic. In acute muscular rheumatism, there is at first a dull pain in the muscles, which gradually increases. When the affected muscles are not used the pain is slight, and certain positions may be assumed without inducing it constantly; but in movements which involve contraction of the muscles the pain is very violent. In some cases the disease is movable, changing from one muscle to another, but usually it remains fixed in the muscle first attacked. The appetite and digestion are not often impaired and there is

no fever. The duration of this form of rheumatism varies from a few hours to a week or more.

799. In subacute or chronic muscular rheumatism, pain is excited only when the affected muscles are contracted with unusual force, and then it is similar to that experienced in the acute form. The chronic form is more apt to change its position than the acute. The duration of this form is indefinite. In both the acute and chronic forms some particular parts of the body are more subject to the affection than others.

800. The muscles on the posterior part of the *neck* are subject to rheumatic affection. It is termed *torticollis* or *cervical* rheumatism in such cases, and should be distinguished from ordinary neuralgia. When the muscles of the loins are affected it is commonly known as *lumbago*. In case the thoracic muscles are affected it is known as *pleurodynia*. In coughing, sneezing, and the like, the pain produced is not unlike that in pleuritis and intercostal neuralgia.

One of the most marked features of muscular rheumatism, is the cramp-like pain, induced by the movements of the affected muscles, whereas the pain is slight when those muscles are uncontracted. This feature is very serviceable in distinguishing muscular rheumatism or myalgia from neuralgic affections. Another trait which distinguishes muscular rheumatism from neuralgia is that the former is characterized by great soreness, while the latter is not. There is also a distinction between inflammation of the muscles and muscular rheumatism. In case of the former, there is continued pain, swelling of the parts, occasional redness and the presence of more or less fever, which conditions do not exist in the latter. Persons subject to rheumatism of the muscles, are apt to suffer from an attack, after exposure of the body to a draught of air during sleep, or when in a state of perspiration.

801. **Treatment of Acute Rheumatism.** Administer the spirit vapor bath (§ 630) to produce free perspiration, which should be maintained by full doses of my Compound Extract of Smart-Weed. The anodyne properties of the latter will also prove very valuable in allaying the pain. Tincture or fluid extract of aconite root (§ 596) may also be employed to assist in equalizing the circulation, and also to secure its anodyne

action. Black cohosh (§ 578) appears to exert a somewhat specific and salutary influence in this disease, and the tincture or fluid extract of the root of this plant may advantageously be combined with the aconite. Take fluid extract of aconite-root thirty drops; fluid extract black cohosh one drachm, water fifteen teaspoonfuls; mix. Dose, one teaspoonful every hour. The whole person should be frequently bathed with warm water, rendered alkaline by the addition of saleratus or soda. The painful joints may be packed in wool or in cloths wrung from the hot saleratus water, and the patient kept warm and quiet in bed. The acetate of potash (§ 569) taken in doses of five grains, well diluted with water, every three or four hours, is very valuable in acute rheumatism. Its alkaline qualities tend to neutralize the acid condition of the fluids of the system, which is a feature of this disease, and it also possesses diuretic properties which act upon the kidneys, removing the offending blood poison from the system through these emunctories. If the joints are very painful, cloths wet in my Compound Extract of Smart-Weed and applied to them, and covered with hot fomentations, will very generally relieve the suffering. The majority of cases will yield quite promptly to the course of treatment already advised, if it be persevered in. The disease, however, sometimes proves obstinate and resists for many days the best treatment yet known to the medical profession.

802. **Treatment of Chronic Rheumatism.**

The general alkaline baths recommended in the acute affection are also valuable in the chronic. The spirit vapor-bath, the Turkish or Russian, as also the sulphur vapor-bath (see chapter on "Water as a Remedial Agent") are all worthy of trial in this obstinate and painful disease. Alteratives are a very valuable class of agents in chronic rheumatism. A course of treatment that has proved very successful in this disease is as follows, viz: take acetate of potash, one ounce; fluid extract of black cohosh, one ounce; fluid extract of poison hemlock (§ 482), two drachms; simple syrup, six ounces; mix. Dose, of this compound, one teaspoonful three times a day. My Golden Medical Discovery is also to be taken three times a day, in doses of two teaspoonfuls, alternately with the preceding compound. This thorough alterative course, if well persevered in, not

neglecting the alkaline and vapor-baths, will generally prove very successful. The specialist, however, dealing with chronic diseases exclusively, will occasionally meet with a case that has been the rounds of the home physicians without benefit, which will tax his skill and require the exercise of all his perceptive faculties in determining the exact condition of the patient's system, upon which the perpetuity of the disease depends. When this is ascertained the remedies will naturally suggest themselves and the malady generally promptly yield to them. But, although the treatment of this disease has entered largely into our practice at the World's Dispensary, and has been attended by the most happy results, yet the cases have presented so great a diversity of abnormal features and have required so many variations in the course of treatment to meet them successfully, that I frankly acknowledge my inability to so instruct the non-professional reader, as to enable him to detect the various systemic faults common to this ever-varying disease, and adjust remedies to them, so as to make the treatment uniformly successful. If the several plans of treatment which I have given do not conquer the disease, I cannot better advise the invalid than to recommend him to employ a physician of well established skill in the treatment of chronic disorders. If such an one is not accessible for personal consultation, a careful statement of all the prominent symptoms, in writing, may be forwarded to a specialist of large experience in this disease, who will readily detect the real fault, in which the ailment has its foundation. Particularly easy will it be for him to do so, if he be an expert in the analysis of urine. A vial of this should be sent with the history of the case, as chronic rheumatism effects characteristic changes in this excretion, that clearly and unmistakably indicate the abnormal condition of the fluids of the body, upon which the disease depends.

GOUT.

803. Gout is closely allied to rheumatism, and the two, by some authors, have been regarded as identical. They, however, show distinct points of contrast, and each affection should have a separate individuality in the catalogue of diseases. Rheumatism usually affects the larger joints, while gout attacks the

smaller ones, for example, the toes. The cause of this disease is an immoderate use of stimulating food and drinks. Plethoric people are its most common victims.

The distinguishing characteristic of gout is a morbid deposit within and around the joints. When recent, the deposit is a semi-solid, cream-colored substance, resembling mortar. By the aid of the microscope, needle-shaped crystals are seen to have formed around the joint. At length these become hardened into masses, have a chalk-like appearance, and are supposed to be salts of soda, which are deposited here instead of being expelled from the system through the kidneys, as nature designed. These deposits occur in gout, are peculiar to it, and to *no other disease*. Gout may appear in three forms, viz: *Acute*, *Chronic*, and *Retrocedent*.

Acute Gout. This form of the disease is usually sudden, occurring in the night, and is of short duration. The attack is marked by pain, which is generally in one of the great toes. Often the disease is extended from the toe to the heel, ankle, and larger joints. Its duration varies from a few days to several weeks.

Chronic Gout. In this form, the pain, heat, and redness, which characterize the acute form of the affection, are very slight or entirely wanting. The "chalky concretions" are deposited about the joints, and sometimes make their way through the skin. In some cases, patients become crippled and deformed.

Retrocedent Gout. This is a form in which the affection is transferred from the external parts to some internal organ, as the stomach, intestines, lungs, or brain. It is sometimes, though seldom, transferred to the heart.

804. **Treatment.** The purpose of the treatment is to rid the blood of uric acid; to render this acid more soluble, alkaline remedies are given. The bicarbonate of potash is one of the best; or ten grains of phosphate of ammonia; or the urate of lithia may be given in five grain doses three times per day. In other respects, the treatment of this affection is similar to that suggested for rheumatism. Colchicum has been largely employed as a remedy for gout and is frequently followed by good results. It excites the kidneys to action and thus removes the blood poison from the system through these excretory

organs. The wine of colchicum may be taken in one-half teaspoonful doses three times a day.

SCROFULA.

805. It is estimated that about one-fifth of the human family are afflicted with scrofula. A disease so prevalent and so destructive of life, should enlist universal attention and the best efforts of medical men, in devising the most successful treatment for its cure. It varies in the intensity of its manifestation, from the slightest eruption upon the skin (scrofulous eczema), to that most fatal of maladies—pulmonary consumption.

806. **The Scrofulous Diathesis.** The existence of a certain disposition or habit of body, designated as the *scrofulous* or *strumous diathesis*, *cachexia* or *dyscrasia*, is generally recognized by medical practitioners and writers as a constitutional condition predisposing many children to the development of this disease. Enlargement of the head and abdomen, fair, soft and transparent, or dark, sallow, greasy or waxy-looking skin and precocious intellect, are supposed to mark this diathesis.

807. The characteristic feature of this disease, in all the multifarious forms which it assumes, is the formation of tubercle, which, when the malady is fully developed, is an ever-present and distinguishing element.

Tuberculous is therefore almost synonymous with *scrofulous*, and to facilitate an understanding of a large list of very prevalent maladies, we may, generalize and classify them all under this generic term. As *tubercle* will frequently be spoken of, playing as it does, a conspicuous part in an important list of diseases which will hereafter be considered, the reader will naturally be led to inquire,

808. **What is Tubercle?** As employed in pathology the term is applied to “a species of degeneration, or morbid development of an opaque matter of a pale yellow color, having, in its crude condition, a consistence analogous to that of concrete albumen.” The physical properties of tubercle are not uniform, however. They vary with age and other circumstances. Some are hard, chalky and calcareous, while others are soft and pus-like. The color also varies from a light yellow, or almost white, to a dark gray.

Its chemical constituency is almost wholly albumen united with a small amount of earthy salts, as phosphate and carbonate of lime, with a trace of the soluble salts of soda.

The existence of tubercular deposits in the tissues of the body which characterizes scrofula, when fully developed, must not, however, be regarded as the primary affection. Its formation is the result of disordered nutrition. The products of digestion are not fully elaborated and pass into the blood imperfectly, in which condition they are unable to fulfill their normal destiny—the repair of the bodily tissues. Imperfectly formed albuminous matter oozes out from the blood and infiltrates the tissues, but it has little tendency to take on cell-forms, or undergo the vital transformation essential to becoming a part of the tissues. Instead of nutritive energy, which by assimilation, produces perfect bodily textures, this function, in the scrofulous diathesis, is deranged by debility, and there is left in the tissues an imperfectly organized particle, incapable of undergoing a complete vital change, around which cluster other particles of tubercular matter, forming little grains, like millet seed, or growing, by new accretions of like particles, to masses of more extensive size. As tubercle is but a semi-organized substance, of deficient vitality, it is very prone to disintegration and suppuration. Being foreign to the tissues in which it is embedded, like a thorn in the flesh, it excites a passive form of inflammation and from lack of inherent vital energy it is apt to decompose and dissolve into pus. Hence, infiltration of the muscles, glands or other soft parts with tuberculous matter, when inflammation is aroused by its presence, or by its presence combined with an exciting cause, gives rise to abscesses, as in lumbar or psoas abscess, when occurring in the psoas muscle of the back. When occurring in the joints, tubercles give rise to chronic suppurative inflammation, as in white swellings, hip-joint disease, etc. Various skin diseases are regarded as local expressions of, or as being materially modified by, the scrofulous diathesis, as eczema, impetigo and lupus. The disease popularly known as “*fever-sore*” is another form of scrofulous manifestation, affecting the shafts of the bones, and causing disorganization and decay of their structure. Discharges from the ear, bronchitis, chronic inflammation of the intestinal mucous membrane, and chronic diarrhœa are

frequently due to scrofula, while pulmonary consumption is unanimously regarded as a purely scrofulous affection. Scrofula shows a strong disposition to manifest itself in the lymphatic glands, particularly the superficial ones of the neck. The most distinguishing features of this form of the disease is the appearance of little kernels or tumors about the neck. These often remain about the same size, neither increasing nor diminishing, until finally, without having caused much inconvenience, they disappear. After a time these glands may again enlarge, with more or less pain accompanying the process. As the disease progresses, the pain increases, and the parts become hot and swollen. At length the matter which has been forming beneath finds its way to the surface and is discharged in the form of thin pus, frequently characterized by containing little particles or flakes of tubercular matter. During the inflammatory process there may be more or less febrile movement, paleness of the surface, languor, impaired appetite, night sweats and general feebleness of the system. The resulting open ulcers show little disposition to heal.

809. **Symptoms.** There is a train of symptoms characteristic of all scrofulous diseases. The appetite may be altogether lost or feeble, or, in extreme cases, voracious. In some instances, there is an unusual disposition to eat fatty substances. The general derangement of the alimentary functions is indicated by a red, glazed or furrowed appearance of the tongue, flatulent condition of the stomach and bloated state of the bowels, followed by diarrhœa or manifesting obstinate constipation. Thirst and frequent acid eructations accompany the imperfect digestion. The foul breath, early decay of the teeth, the slimy glairy stools, having the appearance of the white of eggs, and an intolerable fœtor, all are indicative of the scrofulous tendencies of the system.

810. **Causes.** Scrofula may be attributed to various causes. Observation is convincing that ill-assorted marriages, from temperamental inadaptations, is a prolific source of scrofula. Both parents may be not only healthy, and free from all hereditary taints, but robust, well-formed physically, perfectly developed, and yet not one of their children be free from this dire disease. It may present itself in the form of hip-disease, white swelling,

"fever-sore," suppurating glands, curvatures of the spine, rickets, ulcers, pulmonary consumption, or some skin disorder, in either case showing the original perversion of the constitution and functions (see ¶ 236). These consequences following the marriage of such healthy parties cannot be reasonably accounted for upon any other hypothesis, and yet there is no standard writer of acknowledged excellence on medical subjects, who has more than merely hinted that there is any such thing as temperamental incompatibility, producing these results. Scrofula is hereditary when the disease, or the diathesis which predisposes to its development, is transmitted from one or both parents who are affected by it, or who are deficient in constitutional energy, showing feeble nutrition, lack of circulatory force, and a diminished vitality. All these conditions indicate that a few exposures, and contractions of severe colds, are sufficient to set in motion a train of symptoms, which are completed in pulmonary or other strumous affections. Whatever deranges the function of nutrition, is favorable to the development of scrofula; therefore, irregularities and various excesses tend to inaugurate it. Depletion of the blood by drastic and poisonous medicines, as antimony, arsenic and mercurials, hemorrhages and blood-letting, the inoculation of syphilis, excessive mental or physical labor, as well as a too early use and abuse of the sexual organs, all tend to waste the blood, reduce the tone of the system, and develop scrofula.

811. Scrofula may be the consequence of insufficient nourishment, resulting from subsisting upon poor food, or a too exclusively vegetable diet, with little or no animal food.

Want of exercise and uncleanness contribute to its production. It is much more prevalent in temperate latitudes, where the climate is variable, than in tropical or frigid regions. The season of the year also greatly influences this disease, for it many times commences in the winter and spring, and disappears again in the summer and autumn months.

812. **Treatment.** The skin should be kept clean by means of frequent baths. These assist the functional changes which must take place on the surface of the body, permit the stimulating influence of the light and air, and facilitate the aeration of the blood as well as the transpiration of fluids through the

innumerable pores of the skin. All exposures to a low temperature, especially in damp weather, and the wearing of an insufficient amount of clothing, should be avoided. Then the food should be generous and of the most nourishing and digestible character. Steady habits, and regular hours for eating and sleep must be observed, if we would restore tone and regularity to the functions of nutrition. Moderate exercise in the open air is essential, in order that the blood may become well oxygenized, that the vital changes may take place, and healthy stimuli be applied to the solids. It is no doubt true that the occasion of the prevalence of scrofula among the lower classes may be ascribed to frequent and severe climatic exposures, irregular and poor diet, or want of due cleanliness. Every well-regulated family can avoid such causes, and live with a due regard to the conditions of health. The proper treatment of scrofula is important, because we meet with its symptoms on every side, showing its slow action upon different parts of the body and its influence upon all the organs. After this disease has been existing for an indefinite length of time, certain glands enlarge, slowly inflame, finally suppurate, and are very difficult to heal. These sores are very liable to degenerate into ulcers. All of these symptoms point to a peculiar state of the blood, which continually feeds and strengthens this morbid outbreak. Hence all authors agree that the blood is not rich in fibrinous elements, but tends to feebleness and slow inflammation, which ends in maturation. Thus we trace back this low and morbid condition of the blood to debility of the nutritive organs, defective digestion, which may be induced by irregular habits, a lack of nourishing food, or by the acquiring of some venereal taint, which poisons the delicate operations of vitality and breeds its own slow process of decay and suppuration.

813. The matter that is discharged from these glands is not healthy, but is thin, serous and acid; a whey-like fluid containing little fragments of tuberculous matter, which resembles curd. The affected glands ulcerate, look blue and indolent, and manifest no disposition to heal. I have thus traced this disorder back to weak, perverted and faulty nutrition, to disordered and vitiated blood, the products of which slowly and chronically inflame the glands, which strain out unhealthy, irritating, poisonous

matter. The medicines to remedy this perverted condition of the blood and fluids must be alteratives, *that will act upon the digestive organs and tone the nutritive functions*, thus enriching and purifying the blood. As this disease holds special relations to a large majority of chronic diseases, it is eminently proper that I refer to a few considerations involved in its general treatment.

814. An alterative medicine belongs to a class which is considered capable of producing a salutary change in a disease, without exciting any sensible evacuation. In scrofula these remedial changes are required in digestion, chymification, and also to prevent certain morbid, decomposing operations in the blood, thus reconstructing it, so that it may produce sound tissues.

815. It is well known to medical men that nearly all medicines belonging to the class of alteratives, are capable of solution in the gastric and intestinal secretions, and pass without material change, by a process of absorption, through the coats of the stomach and intestines; as do liquids, and so gain an entrance into the general circulation; that these same alteratives act locally to tone and energize the mucous surfaces, and thus promote and rectify the process of digestion before being absorbed; that alterative medicines, when in the blood, must permeate the mass of the circulation, and thus reach the remote parts of the body and influence every function; that these medicines, while in the blood, may combine with it, reconstruct it, and arrest its morbid tendencies to decomposition.

816. On putting these facts together we are driven to certain conclusions with respect to remedies for the treatment of scrofula. We must use those alteratives which will 1st, give tone to the digestive and nutritive functions, in order to curtail the constant propagation of scrofula in the system; 2d, alter and purify the blood through the natural and insensible functions, thus reconstructing it; and 3d, check the septic, *disorganizing* changes which are evinced by the irritating and poisonous matter discharged from the ulcers.

817. These three ways are distinctly recognized by the profession as modes in which medicines operate upon the nutritive functions and the blood.

818. Thus we see that alteratives may be specifics, in so far

as they are particularly useful in certain disorders, and the combination which I have made in perfecting the Golden Medical Discovery, excels all others with which I am acquainted, for scrofulous diseases, particularly in fulfilling the foregoing indications. It works out peculiar processes in the blood, not like food, by supplying merely a natural want, but by *strengthening the nutritive functions and counteracting morbid action*, after which operations it passes out of the system by excretion.

819. From what has been said upon the importance of blood medicines and their modes of action, the reader must not infer that I account for all diseases by some fault of the humors of the body, for I do not. But that scrofula, in its Protean forms, results from mal-nutrition and disorders of the blood, is now universally conceded. It is for this reason that I have spared neither time nor pains in perfecting an alterative, tonic, nutritive, restorative and antiseptic compound, to which I have given the name of Alterative Extract or Golden Medical Discovery. Not only is it an alterative and a nutritive restorative, acting upon the secretions and excretions, but it opposes putrefaction and degenerative decay of the fluids and solids. Hence its universal indication in all scrofulous diseases.

820. It will intercept those thin, watery discharges, which are consequent upon weakness, degeneration and putrescent decay of the blood, perpetuated by a low grade of scrofulous inflammation. For an adult it can be taken in doses of from one to two teaspoonfuls three or four times per day.

821. Attention should be paid to the bowels, that they be kept in order. If costive, one or two Purgative Pellets, taken daily, will fulfill this indication. A tea made from the barks of tag alder, sassafras and prickly-ash, equal parts combined, is a common domestic remedy and called good to purify the blood. While it will do no harm, it will not be found very efficient. A tincture made by putting fresh common burdock and yellow dock roots into whisky, and taking a tablespoonful once a day in the morning shortly after rising, may sometimes be beneficial, yet it cannot always be relied upon. The patient must not neglect to carry out all the hygienic recommendations heretofore given. The treatment of local tumors or running sores is very simple. Cleanse them every day with Castile-soap and water,

and apply some mild ointment, as one made by adding together one part each, by weight, of bees-wax and mutton tallow, and two parts of lard.

LUMBAR ABSCESS. (PSOAS ABSCESS.)

822. Lumbar abscess is a form of scrofula, generally commencing in the small of the back near the origin of the psoas muscles. It then runs down over the pelvis and generally locates in the groin, near the place where the thigh-bone articulates with the hip-bone.

823. **The Symptoms** of lumbar abscess are dull, heavy pains, extending down the outside of the thigh—sometimes to the foot. When the patient is in a reclining position, he is apt to flex the thighs upon the abdomen. The pain finally becomes more intense, the appetite impaired, the breath foul, and general chilliness is experienced, together with night sweats and other accompaniments of fever.

824. The swelling is caused by a collection of matter in the cellular tissue. The cyst or bag which contains the matter is continually enlarging as the matter increases. When the abscess is opened or bursts by ulceration, the surface of the cyst becomes inflamed. The discharge consists of flaky tuberculous matter, mingled with pus.

825. **Treatment.** The principles to be observed in the treatment of this affection are (1), to preserve the strength of the patient by the plentiful use of very nutritious articles of diet (2), to tone the digestive functions and (3), to constantly employ the best alteratives. All the hygienic recommendations which have been suggested under the treatment of scrofula, apply to the management of this peculiar mode of its manifestation. No depletive or exhausting treatment is allowable, but the free use of tonic and antiseptic alteratives must be persistently followed. The patient should have plenty of fresh air, sunlight, cheerful company, invigorating stimulus, and a nourishing diet such as beef, eggs, etc.

826. If these abscesses are opened, it must be done so as not to permit the entrance of air to the suppurating surface, for that will only intensify the inflammation. And when injections are made with a view to change the character of the morbid action

already set up, they should be introduced so as not to permit the entrance of air. These surgical means should not be undertaken without weighing all the liabilities and consequences, for they are often rashly employed by inexperienced surgeons. Such measures should be well considered before they are adopted.

HIP-JOINT DISEASE. (COXALGIA.)

827. Coxalgia, also known as *Hip Disease*, is a scrofulous affection of the hip-joint. It usually attacks children, but may occur at any period of life. The causes of this affection are imperfectly understood, yet all the indications point to a scrofulous state of the system. Dampness, coldness, improper diet, severe injuries from blows, falls, etc., are all numbered among the exciting causes which are conducive to the establishment of this disease.

828. **The Symptoms** are developed gradually; at first there is severe pain in the knee, but finally it is experienced in the hip-joint. Occasionally it is noticed in the hip and knee at the same time. As the disease progresses, the general health becomes impaired, there is wasting of the muscles, wakefulness, disturbed sleep, high fever, profuse and offensive perspiration, the hair falls out and there is an inability to move the limb without producing excruciating pain. Frequently pus will be formed and discharged at different points, and the limb will become greatly emaciated. Since pain in the knee-joint may mislead as to the location of the disease, to determine, place the patient in a chair and percuss the knee lightly, by giving it a slight blow with the knuckle; if the hip be affected, the pain will readily be felt in that joint; if it be simply neuralgia of the knee-joint, it will excite no pain whatever. After the disease progresses and luxation of the joint takes place, the limbs will be of unequal length.

829. **Treatment.** The indications for the remedial management of this disease consist in (1), absolute rest for the hip-joint; (2), cleanliness of the person and plenty of fresh air and light; (3), keeping the body at an even and comfortable temperature; (4), plenty of beef, eggs, soup and fresh vegetables; and (5), to encourage the appetite, the use of tonics and sustaining alterative medicines, without which we may not expect a favorable

issue or recovery from the disease. This class of medicines must be continually and persistently employed in order to obtain their best results. It is a slow inflammation which is not easily turned from its course, and its fatality should be a warning to employ the best alteratives with a view to overcome and remedy the scrofulous condition of the system. The skin should be toned by the use of a salt, or salt and mustard bath daily, bathing the spine at night with a wash made as follows: Alcohol, one pint; quinine, one drachm; powdered red, or cayenne pepper, one tablespoonful; mix, and pour a tablespoonful in the hollow of the hand and apply it between the shoulders, slowly and gently rubbing the surface until the skin becomes dry. In the same manner apply the wash to the middle and lastly to the lower region, of the back. These indications and measures must be patiently and faithfully followed, to secure the full benefit which they promise. An unsteady, vacillating course of treatment will most assuredly be unsuccessful.

WHITE SWELLING.

830. White Swelling, otherwise known as *Hydrarthrus* or *Synovitis*, more frequently affects the knee-joint than any other part. The elbow, wrist, ankle, or toe-joints may, however, be affected with this disease, but we shall speak of it in this connection as affecting only the knee-joint. Synovitis may be acute or chronic. This last form is sometimes induced by blows, sprains, falls, etc., or from exposure to cold; more frequently it is the result of rheumatism or scrofula.

831. **The Symptoms** of this affection are generally slow in their appearance, being sometimes months in manifesting themselves. The joint at first presents only a slight degree of swelling, which gradually increases. Pain is soon felt, mild at first, but augmenting until it becomes severe. The skin has a smooth, glistening appearance, and there is an increased amount of heat in the parts. The affected limb becomes wasted and sometimes permanently flexed. There is more or less fever about the body, impairment of the digestive organs, and sleeplessness. The pulse is low but quick, night sweats and diarrhœa are often apparent. Under this irritation the patient is liable to waste away and finally die.

A post-mortem investigation reveals the effects of the disease upon the parts attacked. The cartilages of the joint are soft, the synovial membrane is thickened, the ligaments are inflamed and often destroyed, the synovial fluid is increased in amount, sometimes normal in its appearance, again thick and viscous. If the bones be diseased, their articular extremities may be distended and fatty matter deposited in them. The conditions depend upon the form, severity and duration of the disease.

Synovitis may be considered under three heads, viz: Rheumatic, Strumous, and Syphilitic.

Rheumatic Synovitis may arise from exposure to cold, from some injury, or from an intemperate diet. The beginning of the disease may be distinctly marked, or it may be brought on so gradually that the time of its commencement cannot be noted. The pain is of a dull, steady character, and less severe in the night. This form of the disease sometimes terminates favorably, but in scrofulous systems it is liable to end in the destruction of the joint. It is more common in early life, rarely occurring after the thirtieth year.

Strumous Synovitis, or *tuberculosis of the knee-joint*, when of a chronic character, shows a wasting of the limb, and the swelling is of a pulpy consistence. This form of the disease is more liable to occur in children, though occasionally it is met with in adults. But little pain accompanies this form, yet the limb is liable to become permanently affected. In the earlier stages this disease may be checked.

Syphilitic Synovitis is incident to syphilis. The pain is more severe during the night. It, however, generally terminates unfavorably, especially in scrofulous constitutions.

832. **Treatment** of white swelling should be both constitutional and local. Alterative medicines are indicated to correct the blood, and the following preparation will be found very useful. Blue flag-root, prince's-pine, tag alder, burdock and yellow dock-root, each one ounce; best whisky, one quart; cold water, one quart; white sugar, one pound. The dose is one tablespoonful twenty minutes before meals. Or, what is superior, use the Golden Medical Discovery.

Local treatment in the active stage of the disease is to steam the knee-joint and apply hot fomentations. Then follow this, by

using solid extract of stramonium or belladonna mixed with glycerine and applied over the joint, which should be wrapped in cotton or wool to keep it uniformly warm. If there be openings about the joint, discharging pus, syringe them out once a day with Castile soap-suds, and if a little bicarbonate of potash (common saleratus) be added, it will be improved. See to it that the skin be kept active, that the bowels are regular, that the kidneys excrete freely, and that the diet be nourishing. Tonic medicines are indicated, that the patient's strength may be sustained.

833. In many instances the only way to cure synovial inflammation is to allow the joint to rest and stiffen, the loss of motion of the knee-joint being more than compensated by the gain in the general health. The constant movement of the joint keeps up the irritation and inflammation, and hence it becomes necessary to render it immovable.

834. For this purpose take four pieces of cotton cloth, four finger's breadth wide, and thoroughly saturate them in common starch, as prepared for starching linen, and put two thicknesses on each *side* of the leg, keeping it in a straight position. Then take a bandage four yards long and fully three finger's breadth wide, and thoroughly saturate it also in the starch, and commence carefully winding six inches below the knee, allowing the bandage to lap at least one-half its width on each turn around the limb, and so inclose the entire joint and about six inches above it. Continue the leg in this straight line and position until the bandage thoroughly dries, and if it has been properly starched, rightly applied and correctly bound, it will effectually prevent the motion of the joint and allow it rest and opportunity to recover from inflammation.

This disease is so serious that it is better to obtain the advice of an experienced physician, for if it be maltreated the result may be unfavorable.

835. Sometimes in treating white swellings it becomes necessary to resort to amputation in order to save life. In a case to which I was called, several years since, the patient, a gentleman of about forty years, had been under the best of medical treatment for a year and a half, yet the disease had steadily progressed until, when called to the case, I found him much emaciated

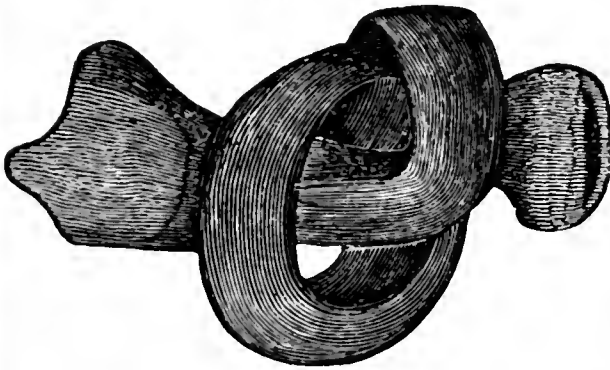
and very feeble. He was kept awake by harassing pain, and tormented by night sweats and hectic fever. Six openings (sinuses) in the neighborhood of the knee-joint were discharging unhealthy, fetid pus, so profusely as to constitute a drain upon his system that was rapidly exhausting his strength, and to which his vital powers must, in a few weeks at most, have yielded, and death put an end to his suffering had not amputation been promptly resorted to. So great was the extent of the diseased bone, from which the exhaustive discharge arose, that to hesitate in performing amputation was but to trifle with the man's life. Although the physicians who had been treating the case admitted that medical treatment could not save his life, and that with the best of care he could only live a few weeks longer, yet they loudly denounced me when I decided to amputate, declaring that the patient was so reduced that he would not survive the operation forty-eight hours. I disregarded their strongly expressed opinions however, and at the solicitation of the patient, decided to cut off the "offending member." With the assistance of my friend, Dr. W. C. Coburn, who superintended the administration of chloroform, I performed amputation about eight inches above the knee. Dissection of the knee-joint and surrounding parts, afterwards proved that I did not amputate too high, for the bone was thoroughly diseased to very nearly the point where cut off, while the bones of the joint, which are now in my cabinet of morbid specimens, bear conclusive evidence of the sad havoc the disease had wrought upon them, and of the necessity of amputation as a *last resort to save life*. He bore the operation well and commenced to improve in strength within a week. For so much less was the drain upon his system, occasioned by the discharge from the stump while it was healing, than that caused by the profuse discharge from so many openings of the diseased bone, and the terrible pain which he had constantly suffered thereby, that a change for the better was plainly marked, by early and unmistakable evidences of improvement. So readily did the stump heal, and so rapidly did he recover, that the noise made by the medical wiseacres who had so loudly denounced me for resorting to amputation, was promptly hushed, and one of them afterwards apologized to me for his ungentlemanly conduct and breach of professional etiquette. In five weeks from the day on

which amputation was performed the patient was walking about on crutches, and a week later visited my office, riding half a mile in an ordinary omnibus. By his permission, I will state that the subject of the preceding narrative is Mr. C.W. Twist, of Topeka, Kansas, who is yet alive, hale and hearty—a *living monument to well-directed surgical skill.*

RICKETS. (RACHITIS.)

836. Rickets is a serofulous disease, in which all the functions

Fig. 147.



of the system are deranged, and it finally manifests itself in disease of the bones. It is characterized by a softening of the bony materials, due to a deficiency of earthy or calcareous matter in their composition. In extreme cases the bones

can be bent or twisted in any direction, as illustrated by Fig. 147. It appears to be a disease incident to cold, damp places, ill-lighted and imperfectly ventilated rooms, and it attacks those who are uncleanly in their habits.

837. **The Symptoms** of rickets are severe pains in the bones, especially during the night; febrile movements and profuse perspiration, paleness of the face, a sallow and wrinkled appearance of the skin and derangement of the digestive organs. After a time the body becomes emaciated, the face pale and the head unusually large. The bones grow soft and unable to support the body; various distortions appear; the extremities of the long bones are enlarged, while the limbs between the joints are very slender. Rickets is a disease peculiar to childhood, though it may not be developed until a more advanced period of life. It rarely proves fatal, unless in those instances where the lungs, heart or other vital organs are involved. In some instances the softening and other symptoms continue to increase, until every function is affected and death ensues.

838. Post-mortem examinations of those who have died of

rickets have disclosed changes affecting the brain, liver, lymphatic glands, etc. The lungs are often compressed or displaced, and the muscles of the body pale and wasted. Sometimes the bones are so soft, on account of the deficiency of the calcareous deposit, that they can be easily cut with a knife.

839. **Treatment.** The use of alteratives, iron tonics, and preparations rich in phosphate of lime, are indicated in this affection. It is a disease usually developed during childhood, in consequence of insufficient exercise, deprivation of the stimulus of sunlight, low, innutritious diet, and lack of cleanliness. Therefore it is essential to obviate all known causes, and at the same time supply the patient with food abounding in those elements which the present wants of the system seem to demand. The importance of this disease requires the employment of some experienced physician. But under any plan of treatment, it will be necessary to observe the general directions given for the hygienic management of scrofula. I might give many illustrations of cases of those who have entirely recovered from this disease, under my advice and treatment, but the relative importance of this affection does not really demand the evidence. I will therefore say, for the encouragement of the afflicted, that this form of scrofula yields to proper medicines, and it may be very successfully treated by skilled and experienced physicians.

SCURVY.

840. Scurvy is a disease which was familiar to the ancients, and pre-eminently destructive to life in their armies and navies. In consequence of the improvement in hygienic rules, it is not as common at the present day, although it contributed not inconsiderably to the mortality in our armies during the late civil war. Scurvy is undoubtedly due to an impaired condition of the blood. This deterioration may be caused by an insufficiency of vegetable food. The long-continued use of salted meats, unaccompanied by vegetable diet, will induce scurvy. Although the diet is one cause of the production of the disease, other causes act as powerful aids in establishing this affection. Exposure to wet and cold and deficient ventilation are favorable to its production.

841. The symptoms of scorbutus, or scurvy, are a sallow appearance of the skin, impaired appetite, feeble and slow pulse, and dry skin upon which are patches of ecchymosis (black or yellow spots). The gums become swollen, soft, of a dark purple color, and are liable to bleed; the teeth loosen and the breath is offensive. As the disease progresses the symptoms increase in severity. This malady is more apt to occur during the winter than in summer.

842. **The Domestic Treatment** of scurvy should be of a hygienic character. The patient should partake freely of fresh, juicy fruit, such as lemons, oranges, grapes, apples, pine-apples, etc. Also of onions, pickles, radishes, water-cresses, fresh meats, etc. In short, his diet should be both generous and nutritious.

843. Attention should also be paid to cleanliness, and the patient should bathe regularly every day; he should also be in a dry atmosphere and have a constant supply of pure air. Constipation should be relieved by mild laxatives, or if suffering from diarrhœa the patient should use moderate astringents, or my Extract of Smart-Weed.

CANCER.

844. Cancers are malignant affections manifested in the formation of morbid growths, which have a disposition to spread and involve contiguous tissues, and at some stage of their existence ulcerate and become hideous open sores. There are several varieties of cancers, all of which possess the above characteristics, as well as others peculiar to each separate variety. Most prominent among these are *Scirrhus*, *Encephaloid*, *Epithelial*, *Colloid*, *Melanoid* and *Osteoid*. The three latter are sometimes included with some other varieties, under one general head—*mixed*. In common parlance, the different kinds of cancers are named from a fancied resemblance to some object, or to the character of the object, as stone, rose, spider, wolf or black cancers; or from the locality in which they appear,—as lip, breast, womb, skin, or bone cancers. These different varieties may exist separately, or may be combined, so that several varieties may appear in a single growth; or according to J. Hughes Bennett, Frank H. Hamilton and others, they are sometimes transformed

one into another. In consequence, it is sometimes very difficult to distinguish and classify them. The *cancer-cells* present almost every conceivable shape, as round, oval, caudate, spindle-shaped, heart-shaped, oblong, square, etc., and vary greatly in their size—from $\frac{1}{200}$ to $\frac{1}{400}$ of an inch in diameter. In some form or other, cancers are met with at all stages of human existence, from infancy to old age.

845. It attacks, by preference, particular structures, though none are exempt from its ravages. It occurs more frequently in females than in males. The structure of the womb and breast, particularly the former, being favorable to its development, accounts for the greater frequency of its occurrence in women.

846. **Causes.** Regarding the cause of cancer, but little is known. There is no doubt that its development is due to perverted nutrition in the part where it occurs, but the nature or cause of this perversion is a mystery. It is quite currently believed that there may be a constitutional predisposition to cancer, which is either hereditary or acquired. It is a matter of dispute whether it is ever hereditary, or whether its occurrence is accidental; certainly only a limited number are met with among children whose parents have had cancer; while numerous cases are found in which there is no evidence of hereditary origin. It is also a matter of dispute whether the constitutional affection existing conjointly with the local disease, sustains the relation of cause or of effect. Certain it is that a characteristic constitutional derangement exists at some stage of its progress; though it may be doubtful if either the local or constitutional cause would be sufficient to produce the disease, without the aid of the other.

Some eminent pathologists claim that this perverted cell growth, which constitutes cancer, is simply the result of an injury inflicted upon the part where the future cancer appears, and that the constitutional affection is the effect of this perverted cell growth, or of their fluids entering the circulation. Others claim that the constitutional affection must exist prior to the local, and that the local disease is determined to the particular locality where it is observed, by any irritation or injury sustained at that point.

847. My own opinion inclines to the existence of the constitutional condition, as a cause rather than as an effect, for the

reason that the number of injuries resulting in cancer is but a very small fraction of the whole number of injuries sustained, while many cancers cannot be traced to any local cause whatever. This view is strengthened also by the great tendency of the local disease to re-appear after its removal; though no doubt those who entertain the local theory will attempt to account for this fact, by the statement that the whole of the local affection was not removed; or that the ulcerative process had infected the system prior to its removal. This latter, however, is but a partial admission of the constitutional theory of the disease.

By some, cancer is supposed to be transmitted by direct contagion, and some very plausible arguments have been advanced to substantiate the belief, one of which is the fact, that when the wife has cancer of the womb, the husband sometimes has cancer of the penis, and *vice versa*. It is not proven, however, that this fact is any thing more than a coincidence. When the cancerous disposition is once established, any thing which depresses the powers of life, renders the system less able to resist disease, and indirectly favors the development of the local sore. There is no doubt that any irritation increases the activity of cancer, and it is generally believed that morbid growths, which are essentially benign, in consequence of irritation and interference may take on a peculiar degeneration and become malignant.

848. **Symptoms.** Cancers are characterized by the presence of morbid growths, which show a decided tendency to spread and involve surrounding tissues. The pain experienced, which is usually severe and agonizing, is peculiar in its character, stinging, biting, sharp, and lancinating, generally occurring in paroxysms, and in the advanced stages of the disease is nearly continuous, the patient getting but little rest. In the earlier stages, pain is sometimes absent. After a time, the growth ulcerates and gives rise to exhaustive discharges, and in many cases to attacks of profuse hemorrhage. As the disease progresses, the countenance presents a peculiar appearance, sallow, sodden, or grayish yellow, which is called the cancerous cachexy. The patient becomes despondent, the general health is deranged, and life is beset on every side by this unrelenting foe, and he dies worn out by the pain and exhaustive discharges, literally, fretted and stung to death.

While the general appearance and symptoms are common to all, each different variety possesses characteristics peculiar to itself, some of which we will briefly notice.

849. **Scirrhus.** This variety is also known as hard, stone or rock cancer, from its extraordinary hardness, which is not surpassed by any constituent of the body except bone. It rarely occurs until after middle age, generally from forty-five to fifty, though occasionally developing in those much younger. It is most frequently met with among females, and oftenest occurs with them about the time of the cessation of the menses. It attacks, by preference, the womb, breast, anus, liver, stomach, colon and rectum. It imparts a dense, inelastic, incompressible, stony sensation to the touch; is sometimes nodulated, and at first is circumscribed and movable under the skin. At a later period it contracts adhesions to the surrounding parts and is thus firmly fixed. After a time the skin over the tumor becomes depressed at its most salient point, and is dark, purple or shining, and finally dries, cracks, or suppurates and opens, leaving an ulcer, which increases in size and becomes irregularly shaped and deeply excavated, attended by profuse, irritating and exhaustive discharges. Neighboring glands become involved, those nearest it becoming first affected. This variety of cancer is slow in its progress, and may run for a long time before active symptoms are manifested. Its average duration is about three years.

850. **Epithelioma.** This variety was formerly classed as Scirrhus, which it resembles, and at the present day many consider it as a less malignant form of that variety. It generally attacks mucous or cutaneous surfaces, though it is not limited to these tissues. Its progress is usually slow. It generally occurs after the fortieth year, though it is occasionally met with prior to thirty, and is most frequent in males. It most commonly occurs upon the lips, tongue, gums, face, vagina, anus, penis, and scrotum, but is not restricted to these localities. It generally begins with a crack, tubercle, or wart, which is hard to the touch, at first movable and tender on pressure. By and by ulceration sets in, sometimes at several points at once, and leaves a foul, unhealthy fungous appearance, with irregular edges, and a hard, rough base, from which issues an abundant discharge of a thin, sanious, corroding character. The pain in this variety

is generally burning, darting, and pricking. Long continued irritation, no doubt, contributes to its development. Their removal, when performed early, is attended with greater success than that of any other variety.

851. **Encephaloid, or Medullary.** This is also known as soft cancer, and is "brain-like" in its appearance and consistence. Rapid in its progress, it destroys life in from six to twelve months. It occurs in either sex and at all stages of life from infancy to old age. It most frequently occurs in the breast, eye, testicle, and uterus, though it may occur in any tissue. This variety is bountifully supplied with blood-vessels, and, in some cases, they throw out a prolific fungus, which is subject to constantly recurring and profuse hemorrhages. When it presents this form it is denominated *fungus hæmatodes*, and is popularly known as rose cancer. It commences as a soft, round, sometimes lobulated, elastic tumor, which is not circumscribed, but blended with the surrounding tissue, its base broader than its summit. The sensation communicated by the touch shows it to be peculiarly soft, elastic, and fluctuating, as if it contained matter. The surface soon assumes a mottled, purple, or shining appearance. It soon ulcerates and becomes an open sore, which is generally filled with a bloody fungus. Prior to the ulceration, the pain is fitful and throbbing, and not so severe or lancinating as in Scirrhus.

852. **Colloid or Gelatiniform**, also known as Encysted, jelly-like, or gum cancer, occurs most frequently in the ovaries, stomach, omentum, and large intestines. It generally grows rapidly and to a very great size. It is often associated with the Scirrhus and Medullary varieties, when its malignancy is intensified. But when pure, as frequently happens in the ovaries, it is the least malignant of any of the cancerous growths; it is generally destructive to life on account of its enormous size and pressure, rather than from the infection of the system, or the extension of the disease to other parts. In this variety, the jelly-like substance is contained in fibrous cells, giving it very much the appearance of honey in the comb, some parts being denser than others. It has less disposition to ulcerate, is not painful only from pressure, and consequently its diagnosis and classification is attended with difficulty. It may occur in both

sexes, and at all periods of life, though most frequently between the ages of thirty-five and fifty.

853. **Melanoid.** This is also called black cancer. Whenever black pigment enters into the structure of cancer, it gives it the peculiar appearance known as Melanoid. This most frequently happens to the Encephaloid variety, of which it is considered but a modification.

854. **Osteoid Cancer.** This is also called bone cancer. It may be a cancerous outgrowth of bone, or occur within the structure of the bone itself. It consists of the Scirrhus or Encephaloid varieties. The bones most liable to cancerous affections are the superior maxillary, the femur and tibia in the vicinity of the knee-joint, and the humerus, though any bone may become affected. The growth of these tumors is generally rapid; they are of an irregularly globular form, and accompanied with intense pain. After they have attained considerable size, the skin presents a tense, shining appearance, of a reddish or purple color.

855. **Other Varieties.** Most authors enumerate several other varieties of cancerous disease, but as they are simply modifications of those already considered, they will be omitted here.

856. **Curability.** While we acknowledge the great fatality attending this disease, it must not be denied that cancers are frequently cured. Much of the evidence on this subject, coming as it does, from men who are accepted by the profession at large as reliable authority, gives additional weight to my own belief. As to whether the cases referred to were really cancers or not, there is no reason for doubt. Everything that science could do to establish a correct diagnosis was done, not omitting microscopical examinations of the substance of the cancers themselves, by eminent microscopists, who it is believed were not biased in favor of establishing perverted views of the curability of the disease in question.

857. Professor Bennett, of Edinburgh, states that they are curable at certain stages, and says that they *have* sloughed out and healed of themselves. Velpau, of Paris, also furnishes evidence, which is sufficient of itself to prove the curability of the disease. His observations extend over a great many years, and in addition to the positive diagnosis made by him, he has watched

the results in hundreds of cases, where the cures were perfect and remained so for a period of time, varying from five to twenty-five years. Some of these cases were truly remarkable. In 1854 he published a work on the subject, setting forth the results of his labors. In 1864, in a letter to Professor Bennett, he refers to the above matter, and also states that in addition to the cases published in 1854, he then had 991 more to be added in confirmation of his previous views.

858. The greater portion of the medical profession have been very slow to acknowledge the curability of cancer, a fact which quacks *have not been slow* to perceive and take advantage of. Consequently there is scarcely a city of any considerable size in the United States that has not its so-called "cancer doctor." The people have *cancers*, and, if respectable practitioners cannot promise to cure, and decline to treat them, they look for some one who *will at least* make the attempt. This is precisely what the quacks want, and people flock to them in great numbers. Generally the knowledge which these self-styled "doctors" possess of the pathology of the disease, and its correct treatment, is very little, and when a genuine cancer patient is so unfortunate as to fall into their hands, he generally dies.

Warts, wens, tumors and sores of all kinds, large or small, benign or malignant, always become cancers at the first consultation with these quacks, and their removal a matter of life or death. These comparatively innocent growths furnish specimens of the skill of the operator, and the efficacy of his treatment. When business is slack, or a "cancer doctor" wants to start in trade, and he has not a sufficiently imposing array of specimens to scare his victims into the belief that they have a "cancer," pieces of tough and gristly beef, selected from various portions of the animal, well bruised, dipped in hot water, and then "pickled" in alcohol, quickly supply the deficiency.

To show the trickery of these fellows, I would state that one of my friends once consulted a noted "cancer doctor" about a morbid growth in the side. It had never occasioned any inconvenience, and had been repeatedly diagnosed as an innocent tumor. He at once decided that it was a "*cancer of the most malignant kind*," and if not removed, would result in death in less than six months. Alas! the patient's pocket! there was not

money enough in it to secure the quack's services, and the removal of the tumor had to be effected by a surgeon, whose diagnosis of simple fatty tumor was confirmed by examination after the operation. The patient speedily recovered, and remains so to this day. Another one, suffering from epithelial cancer of the lip, consulted the same impostor, and was not so fortunate. One hundred dollars was the fee asked, and the cure *guaranteed!* The cancer was partially removed with caustic, and in three months it was much worse than ever. The patient then returned to the "doctor," and he refused to recognize him or do any thing more for him. The result was, the patient died, but the "doctor" got his fee.

859. From time to time, nostrums without number have been offered to the public for the eradication of cancer, without local interference. All of the "sarsaparillas," and nearly all of the "alteratives" and "bitters," that have been manufactured and sold as patent medicines, have been advertised to cure everything, cancer included. The very fact that such a claim is made, should be sufficient to stamp "HUMBUG!" in flaming characters upon every one of them. Various other remedies, the composition of which is not a secret, have been lauded as specifics for cancer, among which is the famous cundurango, but none of them have stood the test of practical experience.

860. I would urge all who are affected with morbid growths, or sores of a suspicious character, to attend to them early, bearing in mind that the sooner proper treatment is instituted, the greater will be the probability of a cure; for some of those growths, which are not actually cancerous, may, if left to degenerate, become so. In seeking for a cure, above all things do not lose time in running after impostors. The country is full of them. They will not give you the chance the highwayman does who demands—"your money or your life,"—but will take both. Go to some physician in whom you have confidence, whose reputation for ability and integrity are above reproach, and who will deal honorably and candidly with you.

861. **Treatment.** The treatment of cancer is very properly divided into *curative* and *palliative*; *curative*, when the treatment is undertaken with a view to remove the local disease, and prevent its return, and to remedy the constitutional dyscrasia

(bad habit of the body); *palliative*, when for any reason a cure is out of the question, and treatment is instituted for the purpose of retarding the progress of the disease, and affording present relief.

862. The curative treatment then will be based upon the following indications:

- (1.) To overcome the constitutional dyscrasia.
- (2.) To remove the local affection.

To carry out the first indication, everything should be done to secure a healthy performance of all the functions of the body, and increase the powers of life. Nutrition and assimilation must be improved, that perfect reparative materials may be elaborated; the blood enriched and purified, all morbid materials being removed to prevent their localization. Pain must be relieved, as it wears the patient out in spite of all other measures. We must inculcate perfect hygiene, proper attention to all the laws of health, which have been fully considered in the chapters on that subject. As we improve the health — no matter how, — just so much do we retard the progress of the disease. In cancer, the better the general health, the slower the local disease progresses.

863. While I have never advertised my Golden Medical Discovery as a specific for cancer and never intend to, yet for the purpose of renovating the constitution, removing impurities from the system, improving nutrition and bringing about a more perfect condition of life, I believe it to be unequalled. So far as this goes towards a cure, my Discovery is curative. I do not, however, expect it to fulfill both indications, nor advise it with such a view.

It aids in the perfect performance of all the various processes of life, and *I have seen remarkably beneficial results follow its employment.*

864. To fulfill the second indication — to remove the local affection — is a very weighty consideration, and success will in a very great measure depend upon their location, and the structures involved. Their removal is generally accomplished by the use of caustics or the knife; and when undertaken must be thoroughly and perfectly done, or the disease will acquire increased impetus from the irritation produced. Mild measures are worse than useless. Cancers must never be tampered with.

There is no middle ground; they must either be let alone or effectually removed. As their removal can only be successfully accomplished by personal attention and the greatest skill, I shall not advise any of the agents I employ, for fear that in non-professional and incompetent hands they might be productive of harm.

865. I must here refer to a "dodge" quite prevalent among "cancer doctors." They advertise to "cure cancers without pain" and "without the use of the knife." In the manner in which legs and arms are amputated without pain, and in no other way, can cancers be removed without pain. The discovery of *anæsthetics* (chloroform and ether) has mitigated the terrors of surgery, and by the temporary suspension of sensibility which they produce, operations are performed without pain. But the quack never resorts to *anæsthesia* and the knife, which is the only really painless way in which cancers can be removed, but by the use of caustics and poultices he slowly disorganizes and sloughs the tumor out. The use of caustics requires so long a time, that to keep the patient influenced by anæsthetics, while a cancer is being removed by them, would be destructive to life. Persons who have been operated on by these "painless doctors" concur in saying that they experienced the most excruciating pain and that for a long time.

Not that I would in all cases resort to the knife in preference to the caustic plan of treatment, for there are various circumstances that, in individual cases, would render the destruction of the tumor by caustics preferable. Again, I have frequently yielded to the feelings of my patients when they had a greater dread of the knife than of the slower destruction and sloughing out of the tumor, and resorted to the latter method. By a judicious compounding of anodynes with the caustics used, I have rendered their employment as nearly painless as is possible and have them accomplish the thorough and complete destruction of all the parts involved in the local disease, which is an essential to the success of the undertaking. The treatment of cancers has entered largely into our practice at the World's Dispensary, and by a large experience with this disease, I have become satisfied that, so far as success in curing them is concerned, it matters little whether the tumor be removed by

the knife, or by caustics modified by anodynes. The healing of the parts after the use of the knife is less tedious than after the caustic applications, as the latter leave an irregularly shaped excavation in the tissues, while the knife makes clean, regular shaped incisions and the edges can be approximated and held in apposition by stiches, when they speedily adhere and close the wound.

866. *After-Treatment.* The constitutional treatment heretofore advised, should always be perseveringly adhered to after the removal of a cancerous tumor. I am confident that the more than ordinary immunity from relapses; which my patients have enjoyed, has been largely due to the thorough course of constitutional after-treatment which I have insisted upon their taking. The philosophy of this must be readily apparent to all thinking minds for reasons already explained.

867. *Palliative Treatment* is resorted to when the local affliction is where it cannot be extirpated, as in the stomach, where it is believed that the operation would hasten fatal results, and when the patient declines to have extirpation attempted. It consists in improving the general health, remedying the *constitutional condition*, thereby retarding the disease. For this purpose, the advice given under the first indication of the curative treatment, is applicable here. Any other conditions which complicate the case, must be met with such remedies as the character of the complication, and the state of the patient demand. No general rules can be given for such a malady, which would be safe in non-professional hands.

Pain is often so severe as to demand special attention, and must be remedied by anodynes or narcotics. In their selection, however, much care should be exercised, and such be chosen as neither exert any peculiarly deleterious effects upon the constitution of the patient, nor interfere with the processes of life. This will no doubt be found a difficult matter by any but an exceedingly skillful practitioner. When the local affection has become an *open sore*, anodyne and antiseptic dressings should be used, which will soothe the irritation and pain, absorb the discharge, and prevent it excoriating the surrounding tissues. Nothing of a harsh or irritating character is ever admissible.

THICK NECK. (GOTTRE.)

868. This disease, also called Bronchocele, is an enlargement of the thyroid gland. This gland lies over and on each side of the windpipe, between the pomum adami, or "Adam's-apple," and the top of the breast-bone, and resembles in shape a pair of saddle-bags. The lobes on each side are quite large, while that portion which lies on the outside of the windpipe, and connects the two lobes to each other, is thin and narrow. The tumor gradually increases in front and laterally, until it produces great deformity, and often interferes with respiration and the act of swallowing. From its pressing on the blood-vessels running to and from the head, there is a constant liability to engorgement of blood in the brain, and to apoplexy, epilepsy, etc. When bronchocele once makes its appearance it continues increasing in size as long as the person lives, unless cured by proper medicines. It never disappears spontaneously. These tumors are much larger than those not familiar with them would suppose from their outward appearance, as they extend under and are bound down by the muscles on each side of the neck, so that they become embedded in the cellular tissues underneath, while the sides of the neck retain, to a considerable extent, their round and even appearance, whereby the real magnitude of the tumor is not apparent. Fig. 148 represents the appearance of the

Fig. 148.



neck of a person afflicted with this disease. The form of the protuberance varies materially with different persons, that shown in the engraving being the shape which it ordinarily assumes.

In the process of curing goitre or thick neck, the external parts and extreme points of the tumor are first absorbed and carried away, when the muscles on the side of the neck, which have been pressed outward by the mass underneath them, immediately regain their true position, and, as a matter of course, the sides of the neck lose all their former prominence, while in front of the windpipe there is no resistance to its projecting outward, but the external skin, for if the entire mass was at once removed, the skin for a while

would remain loose after such distension, and form a kind of sack or pouch. For these reasons, the tumor in front may often appear as large as ever to a casual observer, when, in reality, more than half the entire mass has been removed.

869. **Treatment.** Take my Golden Medical Discovery three times a day, in doses of two teaspoonfuls, and if the bowels are not thereby kept regular, take one to three of my Pleasant Purgative Pellets each day. Apply to the skin over and around the tumor, night and morning, the following solution, which may be put up by any respectable apothecary. Iodine one drachm; iodide of potassa four drachms; dissolve in three ounces of soft water. Apply to the tumor with a feather and continue its use twice a day until the tumor disappears. If the parts should become too tender by its use, it may be omitted for a single day only, and then used again. It should cause the scurf skin to peel off in very small scales, which it will do probably a number of times before the tumor will entirely disappear. Should the solution directed, not be strong enough to produce this effect, add to it a little more of the iodine. Merely wetting the skin night and morning will be sufficient. The treatment must be persevered in and continued without intermission or interruption. The time necessary to effect a cure depends much upon the size of the tumor, a large one requiring a much longer period than a small one. The average time, however, is from six months to a year. In carrying out the above course of treatment, do not omit the use of my Discovery at any time for a longer period than one week, and not oftener than once in four weeks, and continue the use of the Pellets during the omission of the Discovery. The cure largely depends upon a thorough and persistent use of the alteratives.

MUMPS. (PAROTITIS.)

870. This is an inflammation of the parotid glands (¶ 48), and is mostly, though not wholly, confined to children. It is often epidemic and manifestly contagious. It usually, though not always, appears on both sides of the neck at the same time.

871. **Symptoms.** An external movable swelling, just below and in front of the ear, near the angle of the jaw, is the prominent feature. The enlargement is not circumscribed, but

hard and painful, and attended with more or less fever, derangement of the secretions, and difficulty of swallowing. The swelling increases until the fourth or fifth day, when it gradually diminishes, and by the eighth or tenth is entirely gone. Sometimes the swelling is suddenly translated (metastasis) to the breasts, in the female, or the testicles, in the male.

872. **Treatment.** Usually but little treatment is necessary, farther than the avoidance of exposure to cold. If severe or painful, with febrile symptoms, a hot foot-bath and small doses of my Compound Extract of Smart-Weed in some diaphoretic infusion, to induce sweating, with small doses of aconite (§ 596), will produce good results. If metastasis threatens (which seldom happens except on taking cold), resort should be had to mild cathartics, the spirit vapor-bath (§ 630), stimulating liniments to the neck, and warm fomentations (§ 649) to the part attacked. If brain symptoms supervene, a physician should be summoned.

BOILS. (FURUNCULUS.)

873. These annoying affections are hard, prominent, circumscribed, inflamed, suppurating tumors, having their seat in the cellular tissue beneath the skin. They vary in size from a pea to a hen's egg, and may occur on any part of the body. The color of a boil varies from deep red to mahogany. It is painful, tender, advances rapidly to maturity, becomes conical, and finally bursts and discharges bloody matter. Through the opening, and filling the cavity, may be seen a piece of sloughing cellular tissue, which is called the core. In from four to fifteen days it is all expelled and the sore rapidly heals. The causes are an impure condition of the blood, which generally arises from imperfect action of the liver or kidneys.

874. **Treatment.** Hasten suppuration by the aid of poultices. Next purify the blood to prevent subsequent returns in other parts of the body. For this purpose take my Golden Medical Discovery. Tincture of burdock-root (§ 462) made by finely slicing four ounces of the green root and covering it with whisky or alcohol, is a reliable remedy for boils, and may be taken in teaspoonful doses, alternately with the Golden Medical Discovery. If the patient is anæmic (§ 772), give iron (§ 618) in addition to the foregoing.

CARBUNCLE. (ANTHRAX.)

875. These are more malignant, larger and more painful, than boils, which they resemble. They may spring from several small pimples which extend deep into the tissues, and on the surface frequently several small vesicles appear and break. They may discharge, through one or several openings, a thin acrid, bloody, or dark-colored fluid. They most frequently occur upon the back of the neck, back, back part of the limbs, and under the arms. Their presence is evidence of a depraved condition of the vital powers. These tumors vary in size from one-half an inch to six inches in diameter, and rapidly proceed to a gangrenous condition, a grayish slough being detached from the healthy tissue.

876. **Treatment.** Invigorate the powers of life by every possible means. The bitter tonics (§ 607), quinine (§ 496), and iron (§ 618), nutritious diet, pure air, etc., are necessary. Purify the blood, to remove the causes of the disease. For this purpose, give my Golden Medical Discovery in as large doses as can be borne without acting too freely on the bowels. Anodynes (§ 479) may be necessary to overcome the pain. Poultices are useful to encourage the separation of the dead from the living tissues. Antiseptic dressings (§ 500) are beneficial, of which carbolic acid (§ 503) is to be preferred; yeast, however, (§ 501) may be employed.

877. Sometimes powerful caustics, or free incisions, are productive of gratifying results, if followed by appropriate dressings, but a resort to these extreme measures should only be had by the direction of a physician.

For a considerable time after the urgent symptoms have subsided, the Golden Medical Discovery should be used, to purify and enrich the blood, and the bitter tonics and iron may be alternated with it, or be used conjointly to good advantage.

ACUTE CATARRH, CORYZA AND INFLUENZA.

878. Acute Catarrh or Coryza is an inflammation of the lining membrane of the nostrils. The first and most prominent characteristic sensation is that of "stuffing up of the head." This feeling is caused by the swelling of the lining membrane of the passages, which has the effect to close them up. This renders it

difficult to breathe through the nose, and affects the voice very unpleasantly. In a day or two the sufferer begins to sneeze and the nose discharges copious quantities of clear, hot, acrid liquid that often irritates the external orifice, causing it to become very sore. It is an affection more disagreeable than dangerous, and though the sufferer may be conscious of no guilt in the matter, it makes him feel "*extremely mean*." Some one, who evidently has had experience, has written as near as we can remember the words:

"A cold in the head—what can be thought about, what can be said
More unbecoming, more ill-bred."

In addition to the symptoms already mentioned, there is often "aching of the bones," dryness of the skin, and a general derangement of the secretions.

879. **Influenza.** This is an aggravated form of acute catarrh, and is frequently epidemic. When generally prevalent, it is more severe than in its solitary manifestations, and when complicated with other disorders pre-existing in the system, sometimes proves fatal. Sufferers from consumption, heart disease, or any serious derangement of a vital organ, are in great danger from an attack of influenza, should it occur.

880. **Symptoms.** This acute affection usually commences with chilly sensations alternating with flushes of heat. Sneezing is a common symptom; there is pain in the forehead; breathing through the nose is difficult; the eyes are red and watery; soreness of the throat is experienced; there is pain in the back, nervous irritation, fever, thirst, hoarseness and general lassitude. There is cough, at first dry, afterward attended with free expectoration.

881. **Causes.** The causes of this epidemic are supposed to be sudden atmospheric or electric changes. They may or may not be perceptible to the senses, yet their effect is painfully apparent to all. Such causes of disease, however, are beyond human control. We may mitigate their effects, but cannot stay them in their career.

882. **Treatment.** In the milder forms of acute catarrh, or coryza, only simple treatment will be required. A hot foot-bath, on retiring at night, with a full dose of my Compound

Extract of Smart-Weed, to produce free perspiration, will generally break up the attack. Should, however, the discharge from the nostrils continue troublesome, Dr. Sage's Catarrh Remedy should be freely snuffed four or five times a day, and if the bowels are costive, a mild dose of my Pleasant Purgative Pellets will materially assist in overcoming the disease. These means, well applied, together with the avoidance of exposure to cold, and restriction to a spare vegetable diet, will prove most efficacious.

In the more severe attacks of *Influenza*, the most decisive measures should be employed. The spirit vapor-bath (§ 630) should be administered, to induce profuse sweating, or if the means for its application are not at hand, the patient should be warmly covered up in bed, and jugs or bottles of hot water applied to his feet and sides. My Compound Extract of Smart-Weed should be given freely, together with plenty of warm drinks, by which copious perspiration will be kept up, the circulation of the blood equalized, and inflammation of the mucous lining of the air passages subdued. In very severe attacks, the tincture or fluid extract of veratrum (§ 597) will aid in establishing perspiration and subduing the inflammation. If severe coughing is a troublesome symptom, my Golden Medical Discovery should be taken in small and frequent doses.

CHRONIC NASAL CATARRH. (OZÆNA.)

883. In consequence of repeated attacks of acute catarrh, or "cold in the head," as it is usually termed, the mucous membrane of the nose, and air passages of the head, become permanently thickened, the mucous follicles or glands diseased, and their functions either destroyed, or very much deranged. Although chronic catarrh is most commonly brought on in the manner above stated, it sometimes makes its appearance as a sequel and result of typhoid fever, scarlet fever, measles or other eruptive fevers, or shows itself as a local manifestation of scrofulous or syphilitic taints in the system. In the early stages of the disease the patient may be annoyed with "only a slight dropping in the throat," as many express it, the amount of the discharge from the air passages of the head at this stage of the disease being only slightly in excess of health. In some cases the discharge is thick, ropy, and tough, requiring frequent and

strong efforts in the way of blowing and spitting, to remove it from the throat, where it frequently lodges. In other cases, or in other stages of the same case, the discharge is thin, watery, acrid, irritating and profuse. The nose may be "stopped up" from the swollen and thickened condition of the lining mucous membrane so as to necessitate respiration through the mouth, giving to the voice a disagreeable nasal twang. From the nature of the obstruction in this condition, it is useless for the sufferer to endeavor to clear the passage by blowing the nose; this only tends to render a bad matter worse, by increasing the irritation and swelling of the already thickened lining membrane. The swelling of the mucous membrane does not in all cases become so great as to cause obstruction to respiration through the affected passages. In some cases, the patient suffers from headache a great portion of the time, or may experience a dull, heavy, disagreeable fullness or pressure in the head, with a confusion of his ideas, which renders him quite unfit for business, especially such as requires deep thought and mental labor. Memory may be more or less affected, and the disposition of those who are otherwise amiable, is often rendered irritable, or morose and despondent. The mental faculties suffer to such an extent in some cases as to result in insanity. The sense of smell is in many cases impaired, and sometimes entirely lost, and the senses of taste and hearing are not unfrequently more or less affected.

884. **Ozæna.** The ulcerative or more aggravated stage of the disease, from the offensive odor that frequently attends it, is denominated Ozæna.

The secretion which is thrown out in the more advanced stages of chronic catarrh becomes so acrid, unhealthy and poisonous, that it produces severe irritation and inflammation, which are followed by excoriation and ulceration of the delicate lining membrane of the air passages in the head. Although commencing in the lining membrane, the ulcerative process eats away and gradually extends in depth, until it frequently involves all the component structures of the nose—cartilage and bone, as well as fibrous tissues. As the ulceration extends up among the small bones, the discharge generally becomes profuse and often excessively fetid, requires the frequent use of the handkerchief, and renders the poor sufferer disagreeable both to himself and

those with whom he associates. Thick, tough, brownish incrustations, or hardened lumps, are many times formed in the head, by the evaporation of the watery portion of the discharge. These lumps are sometimes so large and tough that it is with great difficulty that they can be removed. They are usually discharged every second, fourth, or fifth day, but only to be succeeded by another crop. Portions of cartilage and bone, or even entire bones, often die, slough away and are discharged, either in large flakes or blackened, half-decayed and crumbly pieces, or, as is much more commonly the case, in the form of numerous minute particles, that escape with the discharge, and are unobserved. It is painfully unpleasant to witness the ravages of this terrible disease, and observe the extent to which it sometimes progresses. Holes are eaten through the roof of the mouth, and great cavities excavated into the solid bones of the face; in such cases only the best and most thorough treatment will check the progress and fatal termination of the disease.

COMPLICATIONS.

885. Catarrh, or ozæna, is liable to be complicated not only by the system, blood and fluids suffering from serofulous or other taints, as has already been pointed out, but also by an extension of the diseased condition to other parts beyond the air passages of the head.

886. **Disease of the Throat.** The acrid, irritating and poisonous discharge which, in some stages of the disease, almost constantly runs down over the delicate lining membrane of the *pharynx* (or throat), is liable to produce in the lining membrane a diseased condition similar to that existing in the air passages of the head. The throat may feel dry, husky and at times slightly sore or raw; or, from the muco-purulent discharge that is almost constantly dropping down over its surface, the patient may feel very little inconvenience from the disease of the throat until it is far advanced — the moistening and lubricating effect of the matter that drops on the surface tending to blunt the sensibility of the parts. The back of the throat may be pale, or of a dark red color. In the advanced stages its surface will be studded with very small ulcers, which, as seen through the mouth, look like small pimples or “canker sores,” for which they

are often mistaken. The patient may at times experience a tickling sensation in the throat, with perhaps a slight cough. The voice may be more or less affected, especially on exposure to cold or through over exertion. The tonsils often participate in the diseased condition, becoming more or less enlarged from the organization of the plastic matter, thrown out from the substance of these glands by the inflammatory process.

887. **Extension of the Disease to the Larynx.** The *larynx* is that portion of the air passages which, in the male, is indicated by "Adam's-apple." The acrid, poisonous discharge which drops into the throat from the head, is not all removed by hawking and spitting. More or less of it is, by the act of inspiration, drawn into the larynx, or still lower down into the trachea (or wind-pipe). In this way the disease creeps along the continuous mucous surface of the air passages, the acrid, poisonous discharge arousing in its track the same irritation, inflammation, thickening and ulceration of the lining membrane, which characterize the disease in other portions of the air passages. When affecting the larynx the case is usually attended with more or less of a cough, which is sometimes very severe, at other times only a slight hacking. Tenderness in these regions, more or less hoarseness, and loss or partial suppression of voice, are common to this stage of the disease.

888. **Bronchitis and Consumption.** We have already detailed the manner in which the throat, larynx and trachea, in succession, become affected from catarrh or ozaena. By the same process of extension, the bronchial tubes, and lastly the parenchyma or substance of the lungs, in their turn, are diseased, and bronchitis and consumption firmly established. Tightness in the chest, with difficulty of breathing, soreness, darting, sharp, or dull, heavy pain, or a prickly, distressing sensation accompanied with more or less cough or expectoration, are evidence that the bronchial tubes have become affected, and should admonish the sufferer *that he is now standing upon the stepping-stone to CONSUMPTION*, over which thousands annually tread, in their slow yet sure journey to the grave.

889. **Deafness.** By means of a small canal called the *eustachian tube*, an air passage and communication between the throat and middle ear (Fig. 63, ¶ 138, 140) is formed. This

passage is lined by a continuation of the mucous membrane which covers the throat and nasal passages. The catarrhal inflammatory process, by continuity of surface, follows the mucous membrane, thickening its structure until the eustachian tube is closed and the beautiful mechanism of the internal ear is rendered useless. While the thickening of the lining mucous membrane is going on, and the passage is gradually becoming closed (and this process sometimes extends through several years), the patient will occasionally, while blowing the nose, experience a crackling sound in one or both ears, and hearing becomes dull, but returns suddenly, accompanied with a snapping sound. This may be repeated many times, until, finally, hearing does not return, but remains permanently injured. In other cases, the hearing is lost so gradually that a considerable degree of deafness may exist before the person is really aware of the fact. Either condition is often accompanied with noises in the head, of every conceivable description, increasing the distress of the sufferer. The delicate bones of the ear are sometimes detached from their articulations, the drum ulcerated and perforated, and through the orifice thus made, the bones or small spicula may escape with the thick, purulent, and offensive discharge.

890. **Closure of the Tear Duct.** The lachrymo-nasal duct ("tear duct") or passage, which, when in a healthy condition, serves to convey the tears from the eye into the nose, may be closed by the same inflammatory and thickening process which I have already explained. This condition is usually attended with watery and weak eyes, the tears escaping over the cheeks, and sometimes producing irritation and excoriation. The nasal branch of the ophthalmic nerve sometimes participates in the ulcerative process going on in the head, so that the eyes are sympathetically affected. They sometimes become congested or inflamed, and sharp pain in the eye-balls may be complained of.

891. **Indigestion, Dyspepsia, etc.** A large portion of the acrid, poisonous, purulent discharge, which drops into the throat during sleep, is swallowed. This disturbs the functions of the stomach, causing weakness of that organ, and producing indigestion, dyspepsia, nausea, and loss of appetite. Many sufferers complain of a very distressing "gnawing sensation" in the

stomach, or an "all gone" or "faint feeling," as they often express it.

892. **Symptoms.** Dull, heavy headache through the temples and above the eyes, indisposition to exercise, difficulty of thinking or reasoning, or concentrating the mind upon any subject, lassitude, indifference respecting business, lack of ambition or energy, obstruction of nasal passages, discharges voluntarily falling into the throat, sometimes profuse, watery, acrid, thick and tenacious mucus, purulent, muco-purulent, bloody, concrete blood and pus, putrid, offensive, etc. In others, a dryness of the nasal passages, dry, watery, weak or inflamed eyes, ringing in the ears, deafness, discharge from the ears, hawking and coughing to clear the throat, ulcerations, death and decay of bones, expectoration of putrid matter, spicula of bones, scabs from ulcers leaving surface raw, constant desire to clear the nose and throat, voice altered, nasal twang, offensive breath, impairment or total deprivation of the sense of smell and taste, dizziness, mental depression, loss of appetite, nausea, indigestion, dyspepsia, enlarged tonsils, raw throat, tickling cough, difficulty in speaking plainly, general debility, idiocy and insanity.

All the above symptoms, as well as some others which have been given previously, and which it is not necessary here to repeat, are common to this disease in some of its stages or complications, yet thousands of cases annually terminate in consumption or chronic bronchitis, and end in the grave, without ever having manifested one-half of the symptoms enumerated.

893. **Varieties.** People often suppose that there are a great many varieties or species of catarrh. This is an error. The nature of the disease is the same in all cases, the symptoms only varying with the different stages of the disorder, and the various complicated diseased conditions which are liable to arise, and which I have already pointed out.

894. **Causes.** Anything which debilitates the system, diminishes its powers of evolving animal heat and withstanding cold or sudden changes of atmospheric temperature and other disease-producing agencies, renders the individual thus enfeebled very liable to catarrh. Among the most common debilitating agencies are a scrofulous condition of the system, or other impurities of the blood, exhaustive fevers and other prostrating

acute diseases, or those badly treated; exhaustive and unnatural discharges, intemperance, excessive study, self-abuse, adversity, grief, want of sleep, syphilitic taints of the system, which may have been contracted unknowingly, or may have been inherited, having perhaps been handed down, even unto the third or fourth generation, to an innocent posterity from infected progenitors; too sudden rest after great and fatiguing exercise, and living in poorly ventilated apartments. These are among the most fruitful causes of those feeble, deranged or impure conditions of the system to which catarrh so frequently owes its origin. Although the immediate or exciting cause is generally repeated attacks of "cold in the head," which being neglected or improperly treated "go on from bad to worse," yet the predisposing or real cause of the disease is, in the majority of cases, an enfeebled, impure, or otherwise faulty condition of the system which invites the disease, and needs only the irritation produced in the nasal passages by an attack of cold, to kindle the flame and establish the loathsome malady. Some people are convinced with difficulty that there exists in their system a weakness, impurity or derangement of any kind which permitted the disease to fasten itself upon them. They may not feel any great weakness, may not have any pimples, blotches, eruptions, swellings or ulcers upon their whole person; in fact, nothing about them that would, except to the skilled eye of the practical and experienced physician, indicate that their system was weakened or deranged with bad humors, and yet such a fault may and generally does exist. As an ulcer upon the leg, or a "fever-sore," or an eruption upon the skin, may be the only outward sign of a fault in the system, so, frequently chronic catarrh is the only sign by which a bad condition of the system manifests itself in a manner that is perceptible to the sufferer himself or to the non-professional observer. The finely-skilled physician, whose constant practice makes his perceptive faculties perfect in this direction, would detect the constitutional fault, as an experienced banker detects a finely executed and dangerous bank-note which the unpracticed eye would receive as genuine.

895. **Treatment.** If you would remove an evil *strike at its root*. As the predisposing or real cause of catarrh is, in the majority of cases, some weakness, impurity or otherwise faulty

condition of the system, in attempting to cure the disease our chief aim must be directed to the removal of that cause. The more I see of this odious disease, the more do I see the importance of combining, with the use of a local, soothing and healing application, a thorough and persistent internal use of blood-cleansing and tonic medicines.

As a local application for healing the diseased condition in the head, Dr. Sage's Catarrh Remedy is beyond all comparison the best preparation ever discovered. It is mild and pleasant to use, producing no smarting or pain, and containing no strong irritating or caustic drug, or other poison. Its ingredients are simple and harmless, yet when scientifically and skillfully combined in just the right proportions, they form a most wonderful and valuable healing medicine. Like gunpowder, which is formed of a combination of saltpetre, sulphur and charcoal, the ingredients are simple, but the product of their combination is wonderful in its effects. This Remedy is a powerful antiseptic, and speedily destroys all bad smell which accompanies so many cases of catarrh, thus affording great comfort to those who suffer from this disease.

The reader's mind cannot be too strongly impressed with the importance of combining thorough constitutional with the local treatment of this disease. Not only will the cure be thus more surely, speedily and permanently effected, but you thereby guard against other forms of disease breaking out as the result of humors in the blood or constitutional derangements or weakness.

In curing catarrh and all the various diseases with which it is so frequently complicated, as throat, bronchial and lung diseases, weak stomach, catarrhal deafness, weak or inflamed eyes, impure blood, scrofulous and syphilitic taints, the wonderful powers and virtues of the Golden Medical Discovery cannot be too highly extolled. It has a specific effect upon the lining mucous membranes of the nasal and other air passages, promoting the natural secretion of their follicles and glands, thereby softening and restoring the diseased and thickened membrane to its natural thin, delicate, moist, healthy condition. As a blood purifier, it is unsurpassed. As those diseases which complicate catarrh are diseases of the lining mucous membranes or of the blood, it will readily be seen why this medicine is so well calculated to cure them.

896. The Golden Medical Discovery is the natural "help-meet" of Dr. Sage's Catarrh Remedy. It not only cleanses, purifies, regulates and builds up the system to a healthy standard, and conquers throat, bronchial and lung complications when any such exist, but from its specific effects upon the lining membrane of the nasal passages it aids materially in restoring the diseased, thickened or ulcerated membrane to a healthy condition, and thus eradicates the disease. When a cure is effected in this manner it is permanent. The system is so purified, regulated and strengthened as to be strongly fortified against the encroachments of catarrh and other diseases. In taking Golden Medical Discovery the effects upon the system will be gradual, and the alterative changes of tissue and function generally somewhat slow. They are not, however, less complete, radical and lasting, and this constitutes its great merit. Under its use all the secretions are aroused to carry the blood-poisons out of the system, the nutrition is promoted, and the patient finds himself gradually improving in flesh; his strength is built up, his lingering ailments dwindle away, and, by and by, he finds his whole person has been entirely renovated and repaired, and he feels like a new man—a perfect being.

897. **The Clothing.** With most persons suffering from chronic nasal catarrh, there is a great disposition to take cold, even slight causes being sufficient to produce an acute attack, which greatly aggravates the chronic affection and operates to render it permanent. To obviate the bad effects that are liable to result from this predisposition, great attention should be paid to the clothing, that it thoroughly protects the person from sudden changes of temperature. For more particular and practical suggestions in regard to this matter, the reader is referred to the article on clothing in Part Third of this volume.

898. **The Diet** has an important influence with this disease, as with consumption and many other chronic ailments. It should be largely composed of those articles rich in the non-nitrogenized or carbonaceous elements (§ 342). Fat meats, rich, sweet cream, good butter and other similar articles of diet, should be largely eaten. By furnishing the elements for the production of animal heat, they counteract the predisposition to

take cold, and thus become most valuable remedial agents—not less essential than the medical treatment that has been advised. The patient, suffering from chronic catarrh, should study well the hygienic teachings to be found in Part Third of this volume and govern himself accordingly.

899. **Treatment of Complications.** There are various complications of this disease that require modifications of the treatment to meet them successfully. Yet rules cannot be made that would enable non-professional readers to vary the treatment to suit peculiarities of constitution, or complications of the disease. When consulted, either in person or by letter, I have been able to so modify the treatment as to adapt it to peculiar individual cases which resisted all ordinary treatment, and have thus cured hundreds who had otherwise failed to find relief.

900. **Time Required in Effecting a Cure.** Reader, if you suffer from chronic nasal catarrh, do not expect to be very speedily cured, especially if your case is one of long standing. Unprincipled quacks and charlatans, who possess no knowledge of disease, or medicine either, and whose sole design is to palm off upon you a bottle or two of some worse than worthless, strong, caustic solution, irritating snuff, or drying “fumigator,” “dry up,” “annihilator,” “carbolated catarrh cure,” “catarrh specific,” or other strong preparations, will tell you that the worst cases can be *speedily* cured by these unreasonable means. It is true that such strong, irritating and drying preparations will many times suddenly arrest the discharge from the nose, but the thickened or ulcerated condition of the lining mucous membrane, which really constitutes the disease, is not removed by such treatment, and the discharge soon comes on again. Besides, there is danger attending the use of such strong, irritating or drying preparations. The disease, by their use, is frequently driven to the throat, bronchial tubes, lungs, or brain, and thus a bad matter is made worse. Not less irrational and unsuccessful is the plan of treating the disease with inhalations of “carbolyzed iodine,” and other drugs, administered through variously devised pocket and other inhalers. Such treatment may mask or cover up catarrh for a time; but by reason of the constitutional nature of the disease, they cannot effect a perfect

and permanent cure. Dr. Sage's Catarrh Remedy, on the other hand, cures the disease upon common sense, rational and scientific principles—by its mild, soothing and healing properties, to which the disease gradually yields, when the system has been put in perfect order by the use of Golden Medical Discovery. This is the only perfectly safe, scientific and successful mode of acting upon and healing it. Without, I trust, being considered egotistical, I can say that this opinion is based upon a large experience and a perfect familiarity with the nature and curability of the disease. For a long time my whole time and attention has been given to the study and cure of Catarrh and other chronic diseases treated of in this volume. Cases of catarrh have been treated by thousands, and my medicines for the cure of this loathsome disease, and for other chronic diseases, have met with an extensive sale in all parts of the United States, and have found their way into many foreign countries. The universal satisfaction with which their use has been attended, and the grateful manifestations received from the cured, have afforded one of the greatest pleasures of my life. Scarcely a mail arrives that does not bring new testimony of cures effected by the treatment heretofore recommended.

901. Directions for Using Dr. Sage's Catarrh Remedy. To prepare the medicine ready for use, put the whole quantity of powder contained in the package as put up for sale, into a bottle; pour into it one pint of cold soft water. Ordinary lake, river, well or spring-water will do if only *slightly* hard. Cork the bottle tightly and shake it thoroughly, after which allow it to stand six or eight hours to settle. Two of the ingredients of which the Remedy is composed do not entirely dissolve, but their medical properties are completely and speedily extracted and taken up by the water. It should be kept tightly corked, not allowing it to freeze in winter nor keeping it where it is very warm in summer.

Use the fluid prepared according to the above directions, not less than three or four times a day, *the last time just before retiring, in the following manner:* Without shaking the bottle to roil the fluid, pour out a teaspoonful or more into a spoon or into the hollow of the hand; first gently, and afterwards forcibly, snuff the fluid up one nostril and then the other, until the nose is well

filled and it passes back into the throat. No fears need be entertained of its strangling or producing any unpleasant effect in thus using it, for unlike any other fluids (simple tepid water not excepted) it does not produce the slightest pain or disagreeable feeling, but on the contrary leaves such a cooling, pleasant sensation, that its use soon becomes a pleasure rather than a task. In a few minutes, after thus using the Remedy, it should be blown out gently (never forcibly) to clear the nose and throat of all hardened crusts, and offensive accumulations, if any such exist. This process should be repeated until the Remedy has been *thoroughly* applied two or three times, *not blowing it out the last time of using it, but retaining the medicine in contact with the affected parts for a considerable length of time.* In employing liquids to cleanse or medicate the nasal passages always have them warmed before using. Never blow the nose *violently*, as it irritates the passages and counteracts, to some extent, the curative effects of the Remedy. No harm can result if large quantities of the fluid are swallowed, as it contains nothing poisonous or injurious.

902. **A better way.** The manner of using Dr. Sage's Catarrh Remedy, advised above, is somewhat imperfect and not nearly so thorough a mode as the one to which the reader's attention will now be directed.

In a very large portion of bad cases of catarrh, or those of long standing, the disease has crept along and extended high up in the nasal passages and into the various sinuses or cavities and tubes communicating therewith. The act of snuffing the fluid *carries it along the floor of the nose and into the throat*, but does not carry it *high enough*, nor fill the passages *full enough* to reach and apply it to all the chambers, tubes and surfaces that are affected with the disease.

The fluid may seem, from the sensation produced, to pass high up between the eyes, or even above them, but it does not. It is only a sensation transmitted to these parts by nerves, the filaments of which are distributed to that portion of the mucous membrane which the fluid does not reach, just as a sensation is transmitted to the little finger by a blow upon the elbow.

Now, in order to be most successful in curing catarrh, it is necessary that *the remedy should reach and be thoroughly applied to*

all the affected parts. This can be accomplished in only one way, which is by *hydrostatic pressure*. The anatomy of the nasal passages, and the various chambers and tubes that communicate therewith, is such that they cannot be reached with fluid administered with any kind of a syringe, inhaling tube or instrument, except one constructed to apply it upon the principle above stated. Such an instrument is the Nasal Douche.

In using this instrument the fluid is forced into every portion of the air passages of the head by its own weight, no snuffling being required.

Fig. 149.



This cut illustrates the manner of using my Nasal Douche.

903. Directions for using Dr. Sage's Catarrh Remedy with this Instrument. To cleanse out the passages, previous to applying the Catarrh Remedy Fluid, take one quart of soft water, add to it two large tablespoonfuls of common salt, and shake it up once in a while until all is dissolved. Put the bottle, or reservoir, on a shelf, or hang it up, so

that it shall be a little higher than the head, fill the reservoir with the salt and water, pressing the tube between the thumb and finger so as to prevent the fluid from escaping through it; introduce the nozzle at the end of the tube into one nostril, pressing it in far enough to close the entrance of the passage so that no fluid can escape by the side of the tube, breathe through the mouth, avoid swallowing, and allow the fluid to flow. The soft palate, by the act of breathing through the mouth, is elevated so as to completely close the passage into the throat, and thus the fluid is made to flow up one nostril in a full, gentle stream, pass into and thoroughly cleanse all the sinuses or cavities connected with the nasal passages, and flow out of the other nostril.

Do not forget that the instrument will not work properly unless you *breathe through the mouth and avoid swallowing* when letting the fluid flow.

Fill the reservoir a second time with the simple salt and water, and inserting the nozzle in the nostril out of which the fluid flowed on using it the first time, pass the current through in the opposite direction to that in which it was before passed, that is, so that it will flow out of the nostril into which it flowed the first time of using it.

After having thus thoroughly cleansed the passages, fill the instrument half full or more of the Catarrh Remedy Fluid, prepared as heretofore directed, and pass this through the nose in the same manner as directed for the salt water. The salt water is not curative, but is milder than simple water, and is, therefore, preferable for cleansing the passages. All fluids injected or snuffed into the nose should be warm.

On first commencing the use of the instrument, it is best to hang it only a very little higher than the forehead, but after using it a few times, put it up about as high as the length of the tube will admit.

Let no one entertain any feeling of timidity on first commencing the use of this instrument, as its use is perfectly simple and, with the fluids which I recommend, is never attended with any strangling, choking pain or other disagreeable sensations, but is agreeable and perfectly harmless. The medicine should be applied with the Douche at least twice a day, in the morning

and at night on retiring. There is no advantage in using the medicine oftener than three times a day, when used with the instrument, but a *liberal* quantity of the fluid should be used each time in order to cleanse all the diseased parts.

HAY CATARRH.

904. This affection, known also as Hay Asthma, and Hay Fever, differs but little in its manifestations, from coryza, save in its *inciting cause*, and in its element of *periodicity*. In this latitude there are a few persons who, between the middle and last of August, are invariably attacked with acute inflammation of all the air passages, giving rise to sneezing, watery discharges from the nose and eyes, difficult respiration, fever, and general prostration. These symptoms are supposed to be induced by the inhalation of the odor of grasses or flowers, which at that time chance to be giving off their most potent exhalations. Unless arrested by medical treatment, the disease will last until cool weather, or the occurrence of a hard frost shall have rid the atmosphere of the irritating perfume.

Dr. Flint, a celebrated medical author, says that some feather beds give off an odor that excites in him all the aggravated symptoms of this disease. He cannot tell before occupying it, whether the feathers in a strange bed will be poisonous to him or not. But if they are, he will be seized soon after retiring, with labored breathing, cough, wheezing and sneezing, until he is obliged to get up, when the difficulty will pass off in a few hours. This experience is interesting, as it goes to prove that certain emanations have the power to incite these inflammatory conditions on certain sensitive constitutions. A case or two are on record, where the odor from the body of a horse so induced these symptoms that the individual could neither ride nor drive him.

905. **Treatment.** This disease may be wholly prevented by the daily use of Dr. Sage's Catarrh Remedy, which neutralizes and rinses away the odorous particles that poison the mucous membrane. The Remedy should, for this purpose, be used with my Nasal Injector, or Douche. When the disease already exists, and has advanced so that it is accompanied with asthma, my Golden Medical Discovery is requisite to cure, and should be used in conjunction with the Catarrh Remedy. Two or three

drops of tincture or fluid extract of lobelia, with the same quantity of tincture or fluid extract of gelsemium (§ 598), repeated three or four times daily, will assist in controlling this very disagreeable malady. Generally, by a vigorous application of this treatment, the patient will soon notice that the disease is yielding by degrees, and the improvement will continue until a complete cure is effected.

NASAL POLYPUS.

906. Nasal Polypi are tumors which grow from the mucous membrane of the nasal passages, to which they are generally attached by a small pedicle (neck). There are two varieties, the *gelatinoid* and *fibroid*. The former closely resembles an oyster in appearance, color and consistence. This form rarely bleeds. The latter is rarer, apter to re-appear, is of a firmer consistence and apter to bleed than the former, and is of a deep red or purple color. In either variety there is usually more than one present, and they are frequently found in both nostrils. They often attain considerable size, and, by pressure upon and displacement of the surrounding structures, occasion hideous deformity of the face. Polypi are very often complicated with nasal catarrh, the successful treatment of which necessitates their removal.

907. **Causes.** Nothing is definitely known regarding their causes, but they are generally supposed to originate in some constitutional derangement, impairing the nutrition of the mucous membranes.

908. **Symptoms.** These are such as attend stoppage of the nose from any cause. There is a sense of obstruction, more or less complete, with fullness and weight in one or both nostrils, which is increased in damp weather. The voice becomes unnatural, as when a cold obstructs the nose, and the sleep is frequently embarrassed by its interference with breathing. The nasal discharge is usually increased, and is of a variable character. The diagnosis of polypus is not certain without seeing or feeling it. By forcing the breath through the nostril in which it is supposed to exist, it will generally, if present, come in sight, which decides the matter at once. Polypi sometimes grow backward into the throat, obstructing the posterior openings of the nose, where they may be seen or felt.

909. **Treatment.** Either before or after the removal of the tumor, the constitutional derangement must be rectified. For this purpose nothing can be better than my Golden Medical Discovery. The removal of the polypus may sometimes be accomplished by snuffing powdered blood-root. When this fails they may be readily removed by any competent surgeon, by torsion or the ligature, and the operation is but slightly painful, for as no nerves are distributed to these morbid growths, they are not sensitive. After their removal the use of Dr. Sage's Catarrh Remedy will prevent their return.

CASES TREATED.

910. **Case I.** J. O. N., presented himself in 1872, seeking treatment for what he mistook for catarrh. He complained of a sense of weight, fullness and obstruction of the nostrils, with discharge. Examination revealed the existence of polypus, with constitutional derangement.

Treatment. Removed the polypus, advised attention to diet, bathing, and recommended the use of my Golden Medical Discovery internally, with Dr. Sage's Catarrh Remedy, to be used with my Nasal Douche. No return of the polypus has been observed.

911. **Case II.** In July, 1873, a middle-aged gentleman from Indiana called at the World's Dispensary, supposing that he was laboring under an aggravated form of catarrh. On examination both nasal passages were found to be perfectly filled with polypi, which had enlarged until they had pressed the sides of the nose out, to such an extent as to produce great deformity, giving him a hideous look. The tumors were promptly removed by the attending surgeon, proper treatment advised, and I learned not long since, through a neighbor of the gentleman operated upon, that he has experienced no return of the morbid growths.

Nasal polypi are so frequently mistaken for chronic catarrh, the treatment of which enters so largely into our practice, that it has also been our fortune to be consulted very frequently by those suffering from the former disease, and the two cases cited are but fair samples of a large number on the case books of the World's Dispensary, which have been treated with uniform success.

ACUTE LARYNGITIS.

912. This is an acute inflammation of the upper portion of the windpipe, (see Fig. 43, ¶ 73), and is attended with considerable danger. Its causes are colds, suppression of perspiration, and such as generally give rise to inflammation (¶ 714).

913. **The Symptoms** are those common to inflammation and follow after a chill. They are soreness or stiffness of the throat, difficulty of swallowing and a desire to clear the disordered organ. There is fever, the sense of constriction in the throat increases, the voice is harsh, hoarse or croaking, and there is frequently a hacking cough. The appearance of the throat is red and swollen, the voice alters and becomes small, shrill or whispering and suppressed, and the breathing more difficult. If not relieved, delirium or coma come on and the patient dies of suffocation.

914. **Treatment.** This should be at once prompt and thorough, and similar in character to that recommended for inflammations elsewhere, viz: the spirit vapor-bath (¶ 630) and hot foot-bath (¶ 640), to induce sweating, which should be kept up by my Compound Extract of Smart-Weed. Diaphoretic infusions (¶ 548), sedatives (¶ 595), with mucilaginous drinks, and hot packs to the throat, are all proper to be employed. The affection being very rapid and dangerous, if it does not *quickly* yield to this treatment, no time should be lost in securing skillful medical aid.

CHRONIC LARYNGITIS.

915. This is of much more frequent occurrence than the acute form, and is often associated with tubercular affections (¶ 807) or constitutional syphilis. It is characterized by an inflammatory condition, ulceration or induration (hardening) of the mucous membrane of the larynx, most frequently the latter. There is also a chronic form known as *follicular laryngitis* or *clergy-men's sore throat*, to which public speakers are subject.

916. **The Causes** of chronic laryngitis are various, as, prolonged use of the vocal organs in reading or speaking; using them too long on one pitch or key, without regard to their modulation; improper treatment of acute diseases of the throat; neglected nasal catarrh; the inordinate use of mercury; syphilis;

repeated colds which directly cause sore throat, injuries, etc.: it is also frequently associated with tubercular disease, and in fatal cases, terminates in consumption.

917. **Symptoms.** These often come on insidiously. They are, soreness of the throat, noticeable particularly when speaking and immediately thereafter; a raw and constricted feeling, leading to frequent attempts to clear the throat, in order to relieve the uneasy sensation. The voice becomes altered, hoarse and husky, and there is a slight, peculiar cough with but little expectoration. At first, the matter expectorated is mucus, but as the disease advances, and ulceration progresses, it becomes mucopurulent, perhaps lumpy, bloody, or is almost wholly pure pus. The voice becomes more and more impaired, or is finally lost. In the latter stages, it resembles consumption, being attended with hectic fever, night-sweats, emaciation, cough, profuse expectoration and sometimes hemorrhage.

918. **Treatment.** Thorough hygiene should be at once instituted, and the patient must refrain from using his voice. At the same time, the diet, bathing, clothing, etc., require careful attention. Every thing should be done that is calculated to build up and improve the general health. My Golden Medical Discovery is well calculated to remove morbid states of the disease, in consequence of its direct action on the mucous membranes of the air passages, and its efficacy in allaying irritation of the laryngeal, pharyngeal, and pneumogastric nerves (see p. 93, Fig. 59). It should be perseveringly employed. Dr. Sage's Catarrh Remedy is of great value in this and kindred affections, used as a gargle. There will be experienced, however, some difficulty in domestic management, from lack of practical skill, in applying it far enough down into the windpipe, and if the ulceration has begun, the employment of local measures will be necessary; for which purpose, nitrate of silver is generally advised by writers. It will be impossible to make the application, except the operator is provided with necessary apparatus, and is perfectly familiar with the anatomy of the parts; consequently I will not take up space by advising treatment which the reader himself cannot ordinarily apply. *Perseverance* is necessary, and the afflicted are cautioned against discontinuing the treatment too soon, or the disease will be very liable to return.

CASES TREATED.

919. **Case I.** A public speaker applied at the World's Dispensary for treatment. He had been a sufferer for years. His voice was reduced to a whisper, making an occasional hoarse or croaking sound. There was dryness and frequent desire to clear the throat; short, frequent, irritating cough, with expectoration of minute bits of tubercle. There was general debility, emaciation and loss of strength.

Treatment. Instituted perfect hygiene to improve the general health. The Golden Medical Discovery was given internally, and local applications made to the larynx, where the laryngoscope showed extensive ulceration. In three months he had so far improved that local treatment was discontinued, and he returned home and continued the use of the Discovery for six months longer. He was fully restored to health, resumed his profession, and two years after, remained perfectly well.

920. **Case II.** Rev. Thos. H. F., consulted me by letter in June, 1874, giving his symptoms in detail, which did not differ materially from those of the preceding case.

Treatment. Directed him to take my Golden Medical Discovery and faithfully follow the hygienic rules heretofore given. I also wrote a note to his family physician advising the application of nitrate of silver to the larynx. A letter was received from the latter gentleman a few months subsequently, announcing the patient's perfect recovery under the course of treatment advised.

CROUP.

921. Every family should be made acquainted with the symptoms and treatment of this disease. Especially is this true of those living remote from a physician. From the lack of this knowledge on the part of parents, many a little one has perished before medical assistance could be obtained. In some of its forms its action is very rapid, and, unless relief is obtained in a few moments, or hours at the most, death ensues.

There are several quite distinct pathological conditions of the vocal and respiratory organs that have, in popular parlance, been designated as croup. But two of these are worthy of consideration here. These are *true* or *membranous* croup, in which a

false, semi-organized membrane is formed, and *spasmodic croup*. Both are liable to result in death. True croup is supposed to originate in the trachea (windpipe), from which, as it progresses, it often extends upward to the larynx and downward to the bronchial tubes. It is the result of severe inflammation of the mucous membrane, and is characterized by the formation of a false membrane, which covers or lines the inner surface of the

Fig. 150.



False Membrane in Croup. From a specimen in Dr. Gross' cabinet.

true structure (see Fig. 150). But whence does this film arise? It is formed of a coagulable semi-fluid exudation from the mucous membrane itself. On being brought to the surface and into contact with the inspired air, this substance grows thick and tough, or leathery, as we find it. It is the obstruction of the respiratory canal with this foreign matter, that causes the labored breathing, and the ringing, brassy cough, together with the crowing or whistling inspiration, characteristic of croup. Before recovery can take place it must be detached and expelled. The cough is nature's effort to accomplish this work. But her effort is apt to prove fruitless unless the invader's hold is loosened by suppuration.

The formation of this adventitious membrane in the larynx is attended with more danger than when it is confined to the trachea. In most cases where the disease has had a very speedy fatal termination, an examination has shown that the larynx was its chief seat.

922. Symptoms. True croup is generally preceded by what is popularly called "a cold." The child coughs, sneezes and is hoarse. It is the hoarseness and the peculiar *character* of the cough that indicates the croupy tendency. This has been already described. In addition, the child is restless, fretful and feverish. The disease makes rapid strides. Finally the cough ceases to be loud and barking, and is very much suppressed; the voice is almost gone; the face is very pale; the head thrown back; the nostrils dilated and in perpetual motion, pulse at the wrist very feeble,

great exhaustion, more or less delirium and soon death comes to the relief of the little sufferer. Convulsions sometimes occur and soon terminate fatally.

923. **Treatment.** No time should be lost in commencing treatment. Hot fomentations (§ 649) should be applied to the throat and upper portion of the chest. The free administration of lobelia (§ 573) in form of infusion, to produce free vomiting, will produce a salutary effect if employed early, before the false membrane has commenced to form, but will not be proper after the early stage is passed. The agent which I have found to manifest the most specific and remedial effect on this disease, is an acetic syrup of blood-root (§ 465) made by adding one teaspoonful of the crushed or powdered root to one gill of vinegar and four tablespoonfuls of white sugar. Heat this mixture to the boiling point, strain, and administer while warm, from one-fourth to one teaspoonful every half hour or hour, regulating the interval between doses by the urgency of the case. It should be given sufficiently often to keep up slight nausea, but not so as to produce vomiting. The patient's body should be frequently sponged with hot water in which a sufficient quantity of salæratum or ordinary baking soda has been dissolved to render it quite strongly alkaline. The tincture or fluid extract of veratrum (§ 597) should be administered to control the inflammation. Five drops to twenty teaspoonfuls of water, of which a teaspoonful may be given every hour, will be about the proper dose for a child one year old. The bowels should be moved. My Pleasant Purgative Pellets will be found to meet this indication admirably. If not able to give them whole, in their sugar-coated form, one or two may be broken up and mixed with a little sugar or sauce of some kind, or with water, and thus administered. Tonics, as quinine (§ 496), or hydrastin (§ 613), or one of these with some form of iron (§ 618), may advantageously be given three or four times a day, should the disease appear to be exhausting the strength, as it will if continued long. Beef tea (§ 666) and other concentrated supporting diet, should be freely administered. The treatment which I have advised has been put to the severest tests in the most malignant forms of the disease, and has resulted most successfully. If, however, in any case it does not give prompt relief, my advice is to lose no time

in summoning a physician who is known to be skilled in the treatment of diseases of children.

924. **Spasmodic Croup.** In this affection no false membrane is formed. It seems to have a nervous origin. Most frequently the child is awakened in the night by a sense of suffocation. He may cry out that he is choking. The countenance is livid, the breathing is hurried and each respiration is attended by a crowing sound. The child has fits of coughing or crying and makes vehement struggles to recover his breath. This complaint, unlike true croup, is unattended by fever, it being of a purely spasmodic character with no inflammation.

925. **Treatment.** This is simple, easily applied and gives prompt relief. Apply hot fomentations to the throat, and give frequent small doses of tincture, or fluid extract, or syrup of lobelia (¶ 573), to produce slight nausea; the specific antispasmodic effects of this agent are all that is required.

CONSUMPTION. (PHTHISIS PULMONALIS.)

926. By this we understand a constitutional affection, characterized by a wasting away of the body, attended by the deposition of tubercular matter into the lung tissue. Hence the appellations, *Phthisis Pulmonalis*; *Pulmonary Tuberculosis*; *Tubercular Consumption*. Tubercles may form in other organs and result in a breaking down of their tissues, but the employment of the term "consumption" in this article is restricted to the lungs. The general prevalence, the insidious attack and the distressing fatality of this disease, demand the special attention and investigation of every thinking person. It preys upon all classes of society. Rich and poor alike furnish its victims.

Some idea of its prevalence may be formed when we consider that, of the entire population of the globe, one in every three hundred and twenty-three persons, annually dies of consumption. It may not be definitely known just what proportion of all the deaths in this country and Europe occurs from this one disease. Those who have gathered statistics differ somewhat, some claiming one-fourth, while others put the ratio at one-sixth, one-seventh and even as low as one-ninth. A fair estimate, and one probably very near the truth, would be one-sixth or one-seventh of the whole number. In New York City, for five

consecutive years, the proportion was three in twenty. In New England, about twenty thousand annually succumb to this destroyer, and in the State of New York as many more. These figures may appear to be exaggerations, but investigations of the subject prove them to be the simple truth. Epidemics of cholera, yellow fever, and other diseases of similar character, so terrible in their results, occasion wide-spread alarm, and receive the most careful considerations for their prevention and cure, while consumption receives scarce a thought. Yet the number of their victims sinks into insignificance when compared with those of consumption. Like the thief in the night, it steals upon its victim unawares. In a large proportion of cases, its approach is so insidious, that the early symptoms are almost wholly disregarded; indeed they excite but little, if any attention, and perhaps for a time disappear altogether. Thus the patient's suspicions, if they have been aroused, are allayed and appropriate measures for his relief are discontinued. This may be the case until renewed attacks firmly establish the disease, and before the patient is fully aware of the fatal tendency of his malady, he is progressing rapidly towards that "bourne from whence no traveler returns."

927. As has already been stated, consumption is a constitutional disease, manifested by feeble vitality, loss of strength, emaciation—symptoms which too often are classed under the name of "general debility," until local symptoms develop, as *cough*, *difficult breathing*, or *hemorrhage*, when examination of the chest reveals the startling fact that tubercles have been formed in the lungs. Invalids are seldom willing to believe that they have consumption, until it is so far advanced that all medicine can possibly do is to smooth the pathway to the grave. Another characteristic of this disease is *Hope*, which remains active until the very last, *flattering* the patient into expectation of recovery. To the influence of this emotion, the prolongation of the patient's life may often be attributed.

928. **Nature of the Disease.** It is an error to suppose that the disease under consideration is confined to the lungs. "Pulmonary Consumption," as Dr. Latham remarks, "is but a *fragment* of a great constitutional malady." The lungs are merely the stage where it plays its most conspicuous part. A

"peep behind the curtain," showing the preliminary processes of the melancholy exhibition, would prove that every part of the system is more or less involved, every vital operation more or less deranged; especially would the *nutritive* function be found to be vitiated and imperfect. The secretive and excretive operations would not be blameless, neither could the nerve forces plead "not guilty." The circulation would also be involved in the general morbid condition. Tubercles, which constitute a marked feature of the disease, are composed of unorganized matter deposited from the blood into the tissues of the lungs. They are small globules of a yellow, opaque, friable substance, of about the consistency of cheese. After their deposition, they are increased in size by the accretion of fresh matter of the same kind. They are characteristic of all forms of scrofulous disease. (See article on Scrofula, page 434).

The most plausible theory in regard to them is, that they are the result of imperfect nutrition. Such a substance cannot be produced in the blood, when the blood is perfectly formed. It is an unorganized particle of matter, resulting from the imperfect elaboration of the products of digestion, which is not therefore properly fitted for assimilation to the tissues. The system being unable to appropriate it, and powerless to cast it off through the excretory channels, deposits it in the lungs or other parts of the body. There it remains as a foreign substance—in the body but not of it—like a sliver or thorn in the flesh, until ejected by suppuration and sloughing of the surrounding parts. It might be supposed by some that when the offending matter was thus eliminated from the lungs, they would heal and the patient recover. But, unfortunately, the deposition of tuberculous matter does not cease. Owing to the morbid action of the vital forces, it is formed and deposited as fast or faster than it can be thrown off by expectoration. Hence arises the remarkable fatality of Pulmonary Consumption.

929. **Causes.** The causes of consumption are numerous and varied, but may all be classed under two heads, viz: *Constitutional* or *predisposing* and *local* or *exciting*. Of just what tubercular matter consists is still a subject of controversy; but that its existence depends upon certain conditions, either *congenital* or *acquired*, is generally conceded; and one of these

conditions is impaired vitality. Constitutional predisposition must first give rise to conditions which will admit of the formation of tubercular matter, before any cause whatever can occasion its local deposition. It must first modify the vitality of the whole system, when other causes may determine in the system thus impaired, the peculiar morbid action of which tubercle is the product. The general division of causes into predisposing and exciting must ever be more or less arbitrary. Individuals subject to predisposing causes may live the natural term of life and finally die of other disease. Indeed, when predisposing causes are known to exist they should constitute a warning for the avoidance of other causes. Again, among the so-called exciting causes, some may operate in such a manner, with some individuals, as to predispose them to consumption, and the results will be the same as if the predisposition had been congenital. The causes that in one individual are *exciting*, under other circumstances and in other individuals would be *predisposing*, because they act so as to depress the vitality and impair the nutritive processes.

930. **The Predisposing Causes**, then, are, hereditary predisposition, scrofula, incompatibility of temperaments in parents, sexual exhaustion of parents, excessive sexual indulgence during pregnancy, climatic influences, sedentary habits, depressing emotions, in fact, *any thing* that impairs the vital forces and interferes with the perfect elaboration of nutritive material.

931. **The Exciting Causes** are those capable of arousing the predisposing ones into activity, and which, in some instances, may themselves induce predisposition; as, spermatorrhœa, dyspepsia, nasal catarrh, colds, suppressed menstruation, bronchitis, syphilis, retrocession of cutaneous affections, measles, scarlatina, malaria, whooping-cough, small-pox, protracted fevers, pleurisy, pneumonia, long-continued influence of cold, sudden suspension of long-continued discharges, masturbation, excessive venery, wastes from excessive mental activity (§ 226), insufficient diet, both as regards quantity and quality, exposure to impure air, atmospheric vicissitudes, damp, dark dwellings, dampness, with the absence of light (§ 329), prolonged lactation, depressing mental emotions, insufficient clothing, improper treatment of other diseases, exhaustive discharges, tight lacing, fast

life in fashionable society, impurity and impoverishment of the blood from any cause, etc. Indeed this list might be greatly extended, but the other causes, which have an influence, are generally in some manner allied to those already named.

932. **Symptoms.** The symptoms of consumption vary with the progress of the disease. Writers generally recognize three stages, which so gradually change from one to the other that a dividing line cannot be drawn. As the disease progresses new conditions develop, which are manifested by new symptoms. Prior to the advent of pulmonary symptoms is the latent period, which may extend over a variable length of time, from a few months to several years; and indeed, may never be developed any farther. Until sufficient tubercles have been formed in the lungs, to alter the sounds observed on auscultation (§ 683) and percussion (§ 684), an unequivocal diagnosis of tubercular consumption cannot be made, even though there may have been hemorrhage, which seldom occurs in any other disease. Nevertheless, when we find *palleness, emaciation, accelerated and difficult breathing, increased frequency of the pulse and general debility*, coming on gradually without any apparent cause, we have sufficient grounds for grave suspicions. This is increased if tenderness under the collar-bone, with slight hacking cough is present, and the spirometer (§ 685) shows diminished breathing capacity. These symptoms should be sufficient to warn any individual who has the slightest reason to believe that he is disposed to consumption, to lose no time in instituting the appropriate hygienic and medical treatment, for it is now that remedies will be found most effective. Unfortunately this stage is too apt to pass unheeded, or receive but trifling attention; the patient finds some trivial excuse for his present condition, and believes that he will soon be well. But, alas for his anticipations! The disease goes onward and onward, gradually gaining ground, from which it will be with great difficulty dislodged.

The cough now becomes sufficiently harassing to attract attention, and is generally worse in the morning. The expectoration is slight and frothy; the pulse varying from ninety to one hundred and twenty in a minute and sometimes even higher. Flushes of heat and burning of the soles of the feet and palms of the hands are experienced. A circumscribed redness of one or

both cheeks is apparent. These symptoms increase in the afternoon, and in the evening are followed by a sense of chilliness more or less severe. The appetite may be good, even voracious; but the patient remarks that his food "does not seem to do him any good," and to use a popular expression, "he is going into a decline." As the strength wanes the cough becomes more and more severe, as if occasioned by a fresh cold in which way the patient vainly tries to account for it. Expectoration increases, becomes more opaque, and perhaps yellow, with occasionally slight dots or streaks of blood. The fever increases, and there is more pain and oppression in the chest, particularly during deep respiration after exercise. Palpitation is more severe. Perhaps there may now be night-sweats—the patient waking in the morning to find himself drenched in perspiration, exhausted and haggard. Bleeding from the lungs occurs, and creates alarm and astonishment, often coming on suddenly without warning. The hemorrhage usually ceases spontaneously, or on the administration of proper remedies, and in a few days the patient feels better than he has felt for some time previous. The cough is less severe, and the breathing less difficult. Indeed, a complete remission sometimes occurs, and both patient and friends deceive themselves with the belief that he is getting well.

After an indefinite length of time, the symptoms return with greater severity. These remissions and aggravations may be repeated several times, each successive remission being less perfect, each recurrence more severe, carrying the patient further down the road toward the "dark valley." Now the cough increases, the paroxysms become more severe, the expectoration more copious and purulent (mattery), as the tubercles soften and break down, and it sometimes sinks in water. The voice is hollow and reverberating; the chest is flattened, and loses its mobility; the collar-bones are prominent, with marked depressions above and below. Auscultation reveals a bubbling, gurgling sound, as the air passes through the matter in the bronchi, with a click to the air cells beyond. Percussion gives a dull sound, which diminishes from above downwards; or if there are large cavernous excavations, it is hollow, and auscultation elicits the amphoric sound, as of blowing into a bottle. Hectic fever is now fully established; the eye is unusually bright and pearly, with dilated

pupils, which give a peculiar expression; the paroxysms of coughing exhaust the patient, and he gasps and pants for breath. The tongue now becomes furred, the patient thirsty, the bowels constipated, and all the functions are irregularly performed. Another remission may now occur, and the patient be able to resume light employment and cares, for an indefinite length of time, which I have known to extend over three or four years, when the symptoms again return.

933. If the patient is a female, and deranged or suppressed menstruation did not mark the accession of pulmonary symptoms, it now becomes profuse and clotty, or is scanty and colorless, and sometimes ceases altogether. In the male, the sexual powers diminish, and copulation is followed by excessive and long-continued prostration. From this time onward, the progress of the disease is more rapid. The liver and kidneys are implicated. In addition to the pallor, the complexion becomes jaundiced, giving the patient, who is now wasted to a mere skeleton, a ghastly look. The urine is generally copious and limpid, though occasionally, scanty and yellow. The pulse increases to one hundred and thirty or one hundred and forty in the minute, and is feeble and threadlike. The cough harasses the patient so that he does not sleep, or his rest is fitful and unrefreshing; whenever sleep does occur, the patient wakes to find himself drenched with a cold, clammy perspiration. The throat, mouth, and tongue, now become tender, and occasionally ulcerate. Expectoration is profuse, purulent, and viscid, clinging tenaciously to the throat and mouth, and the patient no longer has strength to eject it. The hair now falls off, the nails become livid, and the breathing difficult and gasping; the patient has no longer strength to move himself in bed and has to be propped up with pillows, and suffocates on assuming the recumbent position. Drinks are swallowed with difficulty. Diarrhœa takes the place of constipation. The extremities are cold, swollen and dropsical; the voice feeble, hollow, grating, husky, the patient gasping between each word. The breath is short and quick. A slight remission of these symptoms occurs. The patient is more comfortable, lively, cheerful, and perhaps plans for the future. But it is the last effort of expiring vitality—the last flicker of the lamp of life—the candle burns brilliantly for a moment, and with one last effort goes out, and death closes the scene.

934. The duration of the active stage of consumption varies from a few weeks to several years, the average time being about eighteen months.

Cough is always a prominent symptom throughout the entire course of the disease, varying with its progress.

Expectoration, at first scanty, then slightly increased, colorless, frothy and mucous, is also a prominent characteristic. After a time it becomes opaque, yellow and more or less watery; then mucopurulent (mucous and mattery) and finally purulent, copious and viscid. When tubercular matter is freely expectorated, with but little mucus, it sinks in water. This symptom continues to the very last.

Hemoptysis (bleeding from the lungs) may occur at any stage of the disease, often being the first pulmonary symptom noticed, again being delayed until late; and there are cases in which it does not happen at all. It seldom occurs in any other disease.

Night-sweats may occur at any stage, though they are rarely experienced until the disease is pretty well established, and are very exhaustive.

Hectic Fever generally occurs soon after the pulmonary symptoms are developed, and increases in intensity with the progress of the disease. There are usually two paroxysms in the twenty-four hours, one of which occurs towards evening and is followed by the night-sweats.

Dyspnoea (difficult breathing) is at first slight, except after exertion, amounting to only a sense of oppression; but it becomes more and more severe as the disease advances, until the very last, when it is agonizing in the extreme.

Aphæ (ulceration of the mouth) sometimes extending to the pharynx and larynx, generally occurs towards the last. The mouth and throat become so very sore and tender, that nourishment and medicine are taken with difficulty.

Emaciation and Debility are characteristic of the disease. They fluctuate — as the disease advances or is retarded, but become gradually more and more marked, increasing to the very last.

935. *Auscultation and Percussion* (§ 683, 684) constitute valuable means of diagnosis, from the time tubercles begin to be deposited to the very last, and when correctly practiced, reveal

the extent and progress of the disease. As a knowledge of the sounds elicited can only be acquired by practical experience with proper instruments, they will not be explained here. The only diseases with which consumption is likely to be confounded, is general debility in the early stage, bronchitis, chronic pleurisy, chronic pneumonia, and pulmonary abscess after the advent of pulmonary symptoms.

936. **Curability.** Notwithstanding the prevalence of an opinion that consumption is incurable, there exists ample, incontrovertible evidence to the contrary. Its curability is established beyond the shadow of a doubt. Individuals have recovered where extensive destruction of pulmonary tissue existed; indeed they have recovered *with but one lung*. Numerous instances are on record where persons have suffered with all the symptoms of confirmed consumption, and have regained their health and subsequently died of other diseases. The case of the late Dr. Joseph Parish, of Philadelphia, affords a striking example of this kind. In his early life he manifested all the symptoms of confirmed consumption, including frequent hemorrhages, yet he perfectly regained his health, and, after a very useful life, died at an advanced age of another disease. Post-mortem examination revealed the existence of cicatrices (scars) in his lungs where tubercles had been deposited. Dr. Wood, in his *Practice of Medicine*, mentions another instance of a medical gentleman in Philadelphia, who in early life suffered from consumption with hemoptysis, from which he recovered, and afterwards died at an advanced age, of typhoid fever, when the knife revealed the presence of cicatrices. Post-mortem examinations of individuals that have died of other diseases, have revealed, in numerous instances, the existence of consumption at some time of life. In these cases the lungs were perfectly healed by cicatrization, or by the deposit of a chalky material. A French physician made post-mortems of one hundred women, all above sixty years of age, who died of other diseases, in fifty of whom he found evidence of the previous existence of consumption.

Professor Flint, who has enjoyed opportunities for extensive observation in both hospital and private practice, says that consumption sometimes terminates in recovery, and that his observations lead him to the conclusion that the prospect of

recovery is more favorable in cases characterized by frequent hemorrhages. Drs. Ware and Walshe are also led to the same conclusion.

Professor J. Hughes Bennett, of Scotland, has thoroughly investigated the subject, and adds his testimony to that of others, and cites numerous cases that have recovered perfectly. If such testimony is not sufficient, I may mention the following, whose names are well known and respected in professional circles, and all of whom declare that consumption is a curable disease. The list includes Laennec, Andral, Cruveilheir, Kingston, Presat, Rogée, Boudet and a host of others.

No farther back than 1866, on page 145, of the proceedings of the Connecticut Medical Society, we find "observations Antemortem and Post-mortem, upon the case of the late President Day, by Prof. S. G. Hubbard, M. D., New Haven," from which we learn that Jeremiah Day, LL. D., who was for twenty-nine years President of Yale College, was, while a mere youth, a victim to pulmonary consumption. During his infancy and boyhood his vitality was feeble. He entered Yale College as a student in 1789, "but," as Prof. Hubbard remarks, "was soon obliged to leave college on account of pulmonary difficulty, which was doubtless the incipient stage of the organic disease of the lungs which subsequently developed itself." He remained in feeble health for two years, but returned to college and graduated in 1797. For the next six years his lung difficulties were quite severe, and he repeatedly bled from the lungs in large quantities, but he had so far recovered in 1803, as to accept a Professorship. He was afterward chosen President of the college, which office he held for many years in the enjoyment of good health. He died from "old age," as we are told, in 1867, aged 94 years!

937. Statistics claim, that under the improved methods of treating this disease, the mortality, as compared with previous years, has been considerably reduced. Clinical observation proves that injuries to the lungs are not so fatal as was once supposed.

938. **Treatment.** The earlier the treatment of this disease is undertaken, the greater will be the probability of success. The reason of this is obvious; at first the disease is general or constitutional, but as it advances, by the formation of *tubercles*,

it becomes both constitutional and local. Hence the treatment must be both *general* and *special*. The occurrence of certain prominent and distressing symptoms, either from the natural progress of the disease, or from complications with other affections, often renders it difficult, even for physicians, to determine how far their treatment shall be general and how far special.

939. Treating the symptoms instead of the general disease, or treating the constitutional disease without regard to the symptoms which arise from it, is an error into which many physicians have fallen. The constitutional affection, the local manifestations and complications, and the circumstances and individual peculiarities of the patient, must all be carefully considered; remembering all the while, that tubercle is the product of a morbid action, which, in every case, must exist before its deposition in the lungs or any other tissue can take place.

940. In every case where curative treatment is to be instituted, the hearty and persistent co-operation of both patient and friends is absolutely necessary; and the treatment, which is both hygienic and medical in character, must be based upon the following indications:

(1.) The avoidance of the causes concerned in the production and perpetuation of the disease.

(2.) The restoration of healthy nutrition, in order to stop the formation of tuberculous matter.

(3.) The arrest of the abnormal breaking down of the tissues, which, with improved nutrition, prevents emaciation.

(4.) The relief of local symptoms, and the complications arising from other disease.

941. To fulfill the first indication, the avoidance of causes, is of the utmost importance, for if they have originally been sufficient to *produce* the disease, their continued operation must certainly be sufficient to *perpetuate* it. A single individual is very often subjected to the operation of several of the causes already enumerated, some of which, in consequence of his circumstances and surroundings, are unavoidable. Of these, the one most difficult to overcome is climate; *i. e.* the frequent variations of temperature, or the sudden changes from heat to cold.

942. Upon the subject of climate much has been written. But the one best adapted to the cure of consumption, is the one

that will enable the patient to pass a certain number of hours each day in the pure open air, without exposure to sudden variations of temperature. There are very few persons who change their residence, except as a last resort, when the disease is in the latter stage. It is then productive of little or no good. This is one reason why so many people having consumption die in Florida, and other warm countries. If a change of climate is to be effected at all, it should be done early.

943. The best directions for general application, to enable one to avoid causes, is to carry into effect the best possible hygienic regulations for the maintenance of a perfect standard of health. For this purpose the reader is referred to that part of this work treating of HYGIENE, which he should carefully study, as well as the relations between proper hygiene and the causes of disease operating in his individual case.

944. The strongest stimulant to health is well regulated exercise. It assists the performance of every function and is of paramount importance to good digestion and proper assimilation—conditions essential to recovery. It should not, however, be carried beyond the powers of endurance of the individual, so as to exhaust or fatigue. Everything that can invigorate should be adopted; everything that exhausts should be shunned.

945. To fulfill the second indication—to restore healthy nutrition—requires not only a proper diet, both as regards quantity and quality, but demands that the integrity of the organs concerned in the process of digestion and assimilation, shall be elevated, and maintained at the highest standard of perfection possible.

The necessity that the diet be sufficient in quantity must be obvious to all. It is also necessary that it be nutritious and that it should contain carbonaceous elements, to keep up the animal heat. Food of a starchy or saccharine character is apt to increase acidity and interfere with the assimilation of other elements. The albuminous and oily foods have an opposite tendency—alkalinity—and are favorable to nutrition. The articles of diet best adapted to the consumptive invalid are eggs, bread made from unbolted wheat flour, cracked wheat, oatmeal, milk, rich cream, good butter, beef, game, fowls, etc. These contain the necessary elements for assimilation. Oily food is of great importance, and the beef eaten should contain a good proportion of fat. Cream

and good butter are excellent, far surpassing cod-liver oil in their beneficial effects; they are much more palatable and should be eaten largely. Plenty of salt should always be eaten with the food, and a desire for it is often experienced. It fills certain indications admirably by its decomposition into soda and muriatic acid, the former increasing alkalinity of the blood, and the latter improving both the quantity and quality of the gastric juice. Over-eating should be avoided, lest the stomach be induced to rebel against articles of diet, rich in important elements. See article on diet.

946. Derangement of the process of nutrition requires careful attention and mal-assimilation must be corrected. For this purpose nothing can excel my *Golden Medical Discovery*. It increases the appetite, favors the nutritive transformation of the food, enriches the blood and thus retards the development of tubercles. It is so combined that, while it meets all these indications, it relieves or prevents the development of those distressing symptoms so common in this disease.

By reference to ¶ 620, it will be seen how perfectly my *Golden Medical Discovery* is adapted to fulfill the third indication in arresting and curing this disease—which is to check the abnormal breaking down and waste of tissues that constitutes such a prominent feature in this malady. The antiseptic properties of the *Discovery* are unmistakably manifested in preventing such abnormal decomposition. The emaciation, excessive expectoration, profuse perspiration, diarrhœa and hectic fever, common to consumption, are all due to a too active disintegration and waste of the tissues. It is in this condition of the system that my *Discovery*, by its powerful antiseptic properties, manifests its most wonderful curative ability. When, as in this disease, the vital forces of the system have, in a degree, lost their restraining influence over the processes of disintegration, waste and decay, which go on so rapidly that nutrition cannot compensate for the loss to the system, then it is that my *Discovery*, by its antiseptic influence, checks this melting up of the tissues by the chemical forces of the body, and thus arrests the disease. I shall never forget my delight on first witnessing its magic power over this heretofore uncontrollable condition of the system. To the lack of such an element in the treatment of

consumption the unparalleled fatality of the disease is largely due. In their anxiety to improve digestion and nutrition, and thus build up the tissues, physicians lose sight of the no less important indication of restraining the destructive waste going on in the system which overbalances the supplies furnished by digestion. The gradually increasing emaciation and loss of strength renders perpetuity of the organism impossible.

947. The fulfillment of the fourth indication—to relieve local symptoms, and the complications with other diseases—is often attended with no little difficulty.

948. *The Cough* is a secondary symptom, arising from the irritation caused by the tubercles. The attempt to cure it by means of medicated inhalations cannot but be attended with failure. They may palliate, and relieve irritability of the lungs, but, from the nature of the disease, they cannot cure it. They strike at the branches of the disease, while the root is left to flourish, to develop new branches, and replenish the old.

Expectorants have been employed to a great extent, and the theories that have been advanced advocating their use are sometimes very ingenious. That they modify the cough, we do not attempt to deny; but it is at a terrible expense, for they derange the stomach and interfere with digestion and assimilation—they *modify a single symptom, and intensify the real disease.*

A new theory has been recently advanced to favor the sale of expectorant medicines, viz: that they “ripen the matter in the lungs,” “rot away,” and thus favor the expulsion of the tuberculous deposits. But while they are “rotting away” tubercles, they destroy the sound tissue also, and do not in the least arrest the formation of more tubercles.

949. Improvement of the general health will always be attended with amelioration of the cough. If the patient did not cough at all, the lungs would soon fill up with broken-down tissue, and death from suffocation result. Irritation of the nerves supplying the lungs sometimes occurs, and causes the patient to cough immoderately, when it is not necessary for the purpose of expectoration. This condition is readily controlled by the Golden Medical Discovery, which exerts a decidedly quieting and tonic influence upon the pneumogastric nerve, which, with its

ramifications, is the one involved. An infusion of the common red clover, in tablespoonful doses, will also be found a valuable adjunct in overcoming this condition.

950. *Hemoptysis*. Hemorrhage from the lungs is generally sudden and unexpected in its attack, though sometimes preceded by difficulty of breathing, and a salty taste. Although it *very rarely* destroys life, it occasions intense alarm. Common table-salt, given in one-fourth to one-half teaspoonful doses, repeated every ten or fifteen minutes, is generally sufficient to control it. Ligatures applied to the thighs and arms, sufficiently tight to arrest the circulation of blood in the veins, but not tight enough to impede it in the arteries, is a useful proceeding. Hamamelis (§ 518), erigeron (§ 522), gallic acid (§ 524), and lycopus (§ 521), are all valuable for this purpose.

951. *Night-sweats* can only be regarded as a symptom of weakness, and are to be remedied by an improvement of the general health. Bathing in salt water is sometimes attended with good results. The practice of giving acids for this symptom can only be regarded as irrational. It may arrest the sweating, but it will increase the acidity of the system and interfere with the assimilation of oleaginous matter.

952: *Frequency of the Pulse* is generally a prominent symptom in this disease. It points to a condition of sufficient importance to require a remedy. Although the Discovery is combined to meet this condition, its value may be greatly enhanced by adding one-half to one teaspoonful (according to the urgency of the case and the frequency of the pulse) of the fluid extract of veratrum (§ 597) to each bottle. The benefit of this when persisted in, will be apparent in the amelioration of all the symptoms, and in the general improvement.

953. *Diarrhœa* is sometimes a troublesome symptom, and particularly so in the latter stages of the disease. It is generally due to acidity of the alimentary canal, to which the treatment must be directed. Greater care must be had in the selection of the diet, improving the quality and avoiding everything which disagrees with the patient. Improve digestion by every possible means. Carbonate of soda and rhubarb, in form of syrup, is sometimes excellent. My Compound Extract of Smart-Weed will generally, in small doses, arrest the too frequent discharges.

954. *Derangement of the Liver* is often a complication demanding attention, and one which, when relieved, goes very far in ameliorating the general condition of the patient. The Golden Medical Discovery is generally sufficient for the relief of this symptom. Its influence, however, may be considerably increased in this direction by the use of my Pleasant Purgative Pellets, according to the directions which accompany them.

955. *Uterine Derangements.* In the female, derangement of the menstrual function is generally an early complication of consumption, if indeed it does not occur at the outset. It deserves early attention, and in addition to the remedies already advised, my Favorite Prescription is so combined as to meet the requirements of this condition, and at the same time exert a favorable influence upon the constitutional disease.

CASES TREATED.

956. **Case I.** John W., aged 28, applied at the World's Dispensary in March, 1873. Had been subject to poor health for several years, during which time his mother and only sister had died of consumption. Appetite poor, considerable emaciation, debility, quick pulse, subject to "frequent colds," considerable cough and expectoration, with difficulty of breathing, and on exercise, palpitation. Spirometer showed diminished breathing capacity. Upon auscultation the respiratory sounds were indistinct, with more or less mucous sounds, and percussion revealed dullness of sound under the collar-bones. *Diagnosis.*—First stage of pulmonary consumption.

Treatment. Advised outdoor exercise, remaining out as much as possible, taking care to protect himself from the vicissitudes of the weather, wearing plenty of flannel clothing next to the skin, and regular bathing. A diet of eggs, milk, cream, beef, wheat bread, etc., was ordered. To each bottle of Discovery I added a drachm of fluid extract of veratrum, and of this mixture he took a teaspoonful every three hours during the day and evening. In two months he wrote, stating that he was improving. Advised him to continue the same treatment. He continued to improve and at the end of four months wrote as follows: "I am feeling better than I have for ten years; have gained strength and flesh, and can do a day's work. I consider myself well. I think my

disease is permanently arrested, and I shall endeavor to profit by your advice, and change to a more propitious climate, to prevent a relapse."

Comments. This is but one of many cases of the kind I might mention, in which there was no doubt as to the nature of the disease. The results of the treatment speak for themselves. Had the disease run on uninterruptedly it would soon have become much more formidable, if not absolutely incurable.

957. **Case II.** Mr. S. W. H., aged forty, applied for advice in November, 1873. Had been in a decline for a considerable length of time, debility and emaciation were well marked, continued cough with profuse expectoration, and shortness of breath, loss of appetite, night-sweats,—all spoke in unmistakable terms. He had severe attacks of bleeding from the lungs. *Diagnosis.*—Consumption.

Treatment. The hygienic and dietetic treatment already recommended were advised and thoroughly carried out. The Discovery was the only medicine prescribed. After taking one dozen bottles, he writes: "I feel like a new man; my improvement is wonderful; my friends can scarcely believe the evidence of their senses." He continued the treatment for eight months and writes that he is a WELL MAN.

958. **Case III.** Mrs. S. N., aged thirty, mother of two children, applied for treatment early in 1872. She was very much emaciated, great debility, pulse over one hundred, no appetite, pain in the chest, cough and expectoration severe. The respiratory sounds were very indistinct and confused, mixed with a bubbling noise as the air passed through the mucus in the air passages. Percussion showed a dull sound over upper part of the lungs. In addition, there was uterine disease, prolapsus, enlargement and ulceration. *Diagnosis.*—Consumption, complicated with uterine disease.

Treatment. Thorough hygienic regulations and diet as heretofore were recommended. Discovery, with a drachm of fluid extract of veratrum to each bottle, teaspoonful four times a day was prescribed. Local applications, to heal the uterine ulcers, and to reduce the inflammation of that organ and restore its normal function were advised. Also directed Favorite Prescription to be taken three times a day. She remained under my

care five weeks and left for home considerably improved. The journey, however, reduced her somewhat, but in four weeks she had regained what she lost, and was feeling better, with cough modified, and strength and appetite slightly increased. Prescribed special tonic, prepared for her individual case, and continued Discovery and veratrum, with the Favorite Prescription at night. In eight weeks more she wrote: "I have improved so much you would scarcely know me, am gaining strength and all my old troubles are fast disappearing. I have an excellent appetite and have gained thirty pounds in weight." Four months continuation of treatment and she was discharged, cured.

Comment. This was a confirmed case, and badly complicated; but is only a fair sample of hundreds annually treated at the World's Dispensary, and illustrates the success of my plan of treating this formidable disease.

959. **Case IV.** Mr. E. G. R., aged twenty-six, lawyer, consulted me by letter, January 11th, 1871. His symptoms were, general debility, loss of flesh, and cough of several months standing, which annoyed him most, soon after rising in the morning; very little expectoration, but quite a profuse discharge dropping into the throat from the nasal passages, took cold easily, was troubled with creeping chills running up and down the back, pulse, for four months, averaged one hundred and ten beats per minute, night-sweats, had three spells of bleeding from the lungs. He had been examined by several medical men, and his disease had been pronounced consumption by all. *Diagnosis.*—Consumption.

Treatment. Prescribed the general hygienic course heretofore recommended, with strict orders to eat largely of sweet cream and good butter. Directed Dr. Sage's Catarrh Remedy to be used with my Nasal Douche, and teaspoonful doses of my Golden Medical Discovery, modified by one teaspoonful of fluid extract of veratrum to each bottle, to be taken five times a day. March 15th, he wrote that he was greatly improved in health, had experienced one slight attack of hemorrhage since commencing treatment, but promptly arrested it by eating largely of common salt, and taking fluid extract of hamamelis (§ 518), as I had advised him to do, in case it should return. He was advised to continue same treatment, which he did for about six months, when he left off

all medicines, and has since enjoyed good health, as I am informed by a letter received from him during the month of December, 1874. Almost three years have elapsed since he was under my treatment.

960. **Case V.** Samuel F., aged 23, book-keeper, applied at the World's Dispensary in May, 1873, and was examined with the following results: Spirometer indicated diminished capacity of lungs; percussion over upper portion of left lung gave a dull sound, while auscultation revealed an unnatural respiratory murmur in the same locality. Pulse was one hundred per minute; respiration rather short, hurried and quite feeble. Food distressed him, bowels were constipated, had frequent nightly emissions of semen; was impotent, gloomy, and despondent.

Diagnosis.—Consumption, complicated with spermatorrhœa, the result of self-abuse, which he acknowledged to have practiced from the time he was fourteen years of age.

Treatment. As the digestive organs were weak, I could not advise the sweet cream and other oleaginous diet so beneficial in the preceding cases, until after toning up the stomach to a better performance of its functions. I therefore advised Graham bread, rare cooked beef, eggs, fish, oysters, etc.; enjoined outdoor exercise, bathing and other hygienic treatment, and gave Discovery modified with half a teaspoonful of veratrum to each bottle. Dose—one teaspoonful four times a day. Also gave my Stomachic Granules to overcome the dyspeptic symptoms and strengthen the stomach. A specific for the nocturnal emissions was given at bed time. This also combined properties to tone up the nervous system. This treatment operated like a charm and was continued for two months without change, except as the stomach became stronger the diet was changed to one embracing a liberal quantity of sweet cream, rich milk, good butter and fat beef. At the end of three months all medicines, except the Discovery, were omitted, and its continued use for four months longer resulted in a perfect restoration of health, which has continued uninterruptedly to the present time.

961. The foregoing short list could be extended almost indefinitely, from the records of cases treated by the Medical Faculty of the World's Dispensary. While I frankly acknowledge that our practice has been attended with occasional

failures, that mar the records, yet I claim for the treatment which I have outlined, a success heretofore unparalleled in the history of this distressingly fatal malady.

ACUTE BRONCHITIS AND PNEUMONIA.

962. Acute bronchitis is a disease of common occurrence, and in its milder form may pass, in popular parlance, as a "cold on the lungs." It is really an inflammation of the mucous membrane lining the bronchial tubes. The disease is severe in proportion to the extent of surface involved. It may be limited to the bronchial tubes, or it may extend to their minute ramifications.

963. **The Symptoms** will vary with the intensity of the malady. In the milder type, there will be a sense of tightness and heat in the upper portion of the lungs. The air passages may seem raw, sore, or tender. Hoarseness and a dry, harsh, croupy cough, in the early stage, with free expectoration in the more advanced stage, are prominent symptoms; those common to coryza (§ 878) are also frequently present. If the disease is severe, the whole system sympathizes in the derangement. Cold chills run over the body, followed by flushes of fever. The pulse is rapid and hard, while the surface and extremities are cold. The bones ache, and there is general prostration. Unless timely aid be rendered, a fatal termination may ensue.

964. **Pneumonia or Lung-Fever.** This is an inflammation of the *substance* of the lungs. As the symptoms of this disease, particularly in its early stage, are so similar to those of acute bronchitis, that the non-professionals, who are not supposed to be qualified for practicing auscultation (§ 683) and percussion (§ 684), by which alone the two diseases can be distinguished with certainty, cannot be expected to discriminate between them, and since the treatment of the two maladies, in the initial stage, would be the same, I have classed the symptoms common to the two, together, and shall pursue the same plan in giving the treatment. Bronchitis constantly accompanies inflammation of the substance of the lungs, and the disease may also be complicated by inflammation of the pleura, when it is designated as *pleuro-pneumonia*. Sharp, lancinating pains in the chest are characteristic of this complication. As in

pneumonia a far greater amount of tissue is involved in the inflammation, than in bronchitis, the attendant symptoms will be correspondingly more severe.

965. **Causes.** These diseases are most frequently induced by a sudden check imposed upon the perspiration. Bronchitis sometimes results from the inhalations of irritating substances. It is many times a secondary result of eruptive fevers, whooping-cough and other debilitating diseases.

966. **Treatment.** The course of treatment to be employed in the early stages of these diseases will not essentially differ from that already given in ¶ 879, for *influenza*. The spirit vapor-bath (¶ 630), with very full doses of my Compound Extract of Smart-Weed, hot fomentations applied to the chest, and two drop doses of tincture or fluid extract of veratrum, repeated every hour, will generally break up the disease if resorted to early. Should the cough be dry and troublesome, three to five drop doses of tincture or fluid extract of lobelia may be given, every two hours, with mucilaginous drinks, such as flax seed or slippery elm tea. If the active inflammation is arrested by this course of treatment and should the cough, at the same time, not fully subside, my Golden Medical Discovery should be taken until it is thoroughly subdued, for, if allowed to continue, it is liable to result in chronic bronchitis or consumption. Should the disease not promptly yield to the treatment which I have advised, the family physician should be summoned to take charge of the case.

CHRONIC BRONCHITIS.

967. This is a subacute form of inflammation of the mucous membrane of the bronchial tubes, of a very persistent character and variable intensity. There is always cough, which is accompanied by more or less profuse expectoration, of a mucous or muco-purulent character, and sometimes streaked with blood. It is a common form of disease in this country, and may be met with in all stages of life. It is common to the aged, among whom it occurs without any obvious cause, and often continues during life. There are few diseases that manifest a greater variety of modifications than this. It is met with presenting symptoms so mild as to attract little or no attention, from which

it may progress to the most grave and obstinate form of the disease, and perhaps terminate in consumption. Its progress is sometimes slow and insidious, at other times rapid. It is often associated with laryngitis, either as a cause or an effect, by the extension of the disease along the mucous membrane, which is continuous throughout these organs. It often occurs in connection with disease of the heart and kidneys, and tends to the development of asthma. There is often irritation of the filaments of the pneumogastric nerve, which increases the cough, and causes it to occur in paroxysms. There is little or no tendency to spontaneous recovery. Occasionally, it continues for years without becoming worse, until some derangement of the system occurs, when it may be aggravated and prove rapidly destructive. Again, it may take on a rapid and severe form from the first. It presents a great variety of symptoms, according to the severity of the disease, and the rapidity of its progress. Physicians not thoroughly experienced and skilled in the practice of examining the chest by measurement, auscultation (§ 683), and percussion (§ 684), are frequently not able to distinguish between this disease, in its various stages, and pulmonary consumption.

968. **Causes.** The causes of chronic bronchitis are various. It may occur as a result of the acute form of the disease, and is a frequent termination of colds, influenza, whooping-cough and diphtheria. Constitutional syphilis contributes to its existence, and so do organic diseases of the heart and kidneys. It is frequently associated with rheumatism. It often follows measles and other eruptive fevers, protracted disease of the biliary organs, and the recession of cutaneous complaints. The inhalation of irritating substances, to which millers, stone-cutters, workers in metals, etc., are exposed, is liable to produce this ailment. Affections of the throat—pharyngitis, laryngitis, and that peculiar trouble to which public speakers are liable, frequently extend downward through the windpipe to the air tubes and cause bronchitis. The most frequent cause is the changeable weather incident to certain climates—the sudden transition from hot to cold, from dry to moist atmospheres, and *vice versa*. Anything that interferes with the healthy function of the skin, impeding elimination through this gland, throws an increased amount of labor on the pulmonary membranes and is liable to

cause this disease. Neglected catarrh is also a fruitful cause of this affection, in consequence of the morbid products resulting from it, dropping into the throat, and being forced farther and farther into the air passages every time the breath is inhaled, until they excite cough and are expelled. By their presence they incite morbid action in every membrane with which they come in contact. The system may be predisposed to this affection by any of the causes which produce consumption; when the disease is once established, it is very easily perpetuated by any of those causes which interfere with the proper performance of the various functions, or tend to debility.

969. **Symptoms.** The symptoms of this disease vary greatly with its violence and progress. Cough is always present and is very often the first symptom to attract the patient's attention. It is usually increased by every slight cold, and with each fresh accession becomes more and more severe, and is thrown off with greater difficulty. The cough is always persistent, sometimes short and hacking, at other times deep, prolonged and harsh. Sometimes it is spasmodic and irritative, and particularly so when it is associated with affections of the larynx or with asthma, involving irritation of the branches or the filaments of the pneumogastric nerve.

When the chronic follows the acute form of the disease, or follows inflammation of the lungs, the expectoration may be profuse from the first, and of a yellowish color and sticky quality. When the disease arises from other causes, the expectoration will at first be slight and the cough dry or hacking; this may continue for some time before any expectoration occurs. It will at first be whitish, opaque and tenacious, mixed sometimes with a frothy mucus, requiring considerable coughing to loosen and throw it off. As the disease progresses it becomes thicker, more sticky, of a yellowish or perhaps greenish color, mixed with pus, and it is sometimes streaked with blood. In the latter stages it becomes profuse and fetid and severe hemorrhage may occur. Sometimes the cough and expectoration disappear when the weather becomes warm, to re-appear again with the return of winter, which has gained for it the appellation of *winter cough*. There is generally little or no fever, though the pulse may be accelerated and sometimes to a considerable extent. Usually

a shortness of breath is observed, with a sense of constriction around the chest. The sufferers feel as if there was something bound tightly round them, rendering inhalation difficult. Soreness throughout the chest is often a persistent symptom, especially when the cough is dry and hard. Behind the breast-bone there is experienced a sense of uneasiness, in some cases amounting to pain, more or less severe. In females, when the bronchitis is associated with uterine derangement, as it very often is, a sense of constriction and weight, a dragging down feeling is usually experienced behind the breast-bone, where the trachea divides into the bronchial tubes. If the disease is allowed to progress, the skin becomes dry and harsh, the tongue coated in the morning, and the appetite more or less impaired; the bowels become irregular, the urine high colored, the pulse weaker and increased in frequency, with all the other symptoms of confirmed consumption, from which it can only be distinguished by auscultation (§ 683) and percussion (§ 684).

The general symptoms vary greatly with different cases; sometimes the disease continues for years with but little change; the individual wonders why he takes cold so easily, and that it settles upon the lungs, and that each succeeding one becomes worse; but, sooner or later, the sufferer loses flesh and strength, nutrition is disturbed, and all the functions become deranged. Generally, when the disease is established, the patient becomes anæmic (§ 772), the appetite impaired, the circulation deranged, and all the secretions affected. As the disease progresses, the loss of strength is more and more marked, the patient is no longer able to follow his usual employment, his spirits are depressed, and he gradually sinks, or else tubercles are developed in the lungs, and he dies of true consumption.

970. **Curability.** Respecting the curability of this disease, but little need be said. In its early stages it readily yields to appropriate treatment of a hygienic and medicinal character. Change of climate has been known to effect its removal, and it has subsided on the cessation of the exciting causes, yet such occurrences are rather the exceptions. While it yields quite readily to proper treatment, it has little or no tendency to cease spontaneously. As it progresses, it becomes more severe, the constitution is deeply involved, and it acquires an obstinacy that

demand the most skillful treatment for its removal. As its severity increases, in consequence of its progress, or from complication with other affections, its curability diminishes, and new principles of treatment, to correspond with the complications, are necessary. Under properly adapted treatment, nearly every case is curable, yet there are instances which terminate fatally by interfering with respiration and causing death by asphyxia (suffocation). Such terminations are rare, the disease, if not arrested, more frequently merging into consumption; or death results more directly as a termination of the diseases with which it may be complicated, as those of the heart and kidneys. Under proper management, fatal cases are the exceptions, and many of the complications which arise as it progresses, can be obviated. The great danger from it, arises generally from its complications, so that it is dangerous indirectly rather than directly.

971. **Treatment.** Thorough attention to hygiene, with the avoidance of the causes concerned in its production and perpetuation, are necessary. The patient must be protected from the vicissitudes of the weather by plenty of clothing; flannel should be worn next to the skin, with a pad of flannel or buckskin over the chest, and the feet should be kept warm and dry. Plenty of exercise in the open air is essential. When the weather is so cold as to excite coughing, something should be worn over the mouth, as a thin cloth, handkerchief, muffler, or anything that will modify the temperature of the atmosphere before it comes in contact with the mucous lining of the lungs. Good ventilation of sleeping rooms, is all-important; not that the air should be cold, but that it should be as pure as possible. The avoidance of all causes likely to derange the general health, and thus indirectly aggravate the disease, is but the dictate of common prudence. The system must be maintained in good condition, to prevent the development of tubercles, or other complications which are liable to arise from constitutional derangement, and at the same time the inflammatory process going on must be overcome. In order to accomplish this, the treatment will be based upon the following indications: 1st. To secure and maintain a healthy standard of all the functions, and thus prevent complications. 2d. To overcome the modified inflammation existing in the bronchial mucous membrane.

972. To fulfill the first indication will indirectly influence the second. The function of *nutrition* is very apt to become impaired as the disease progresses, and in consequence general deterioration occurs. The advice laid down and fully considered under consumption, is appropriate here. The diet must be nutritious, carbonaceous, and of sufficient quantity. Beef, milk, rich cream, plenty of good butter, eggs, fish, wheat bread from unbolted flour, supply the appropriate alimentary substances for perfect nutrition and maintenance of animal heat.

973. *The Skin* is intimately associated with the functions of the lungs, and influences the retrocession or advancement of the disease, as its function is properly or improperly performed. In this disease its disposition is to become dry and harsh. This should be overcome by the frequent use of the warm-bath, the beneficial effects of which are sometimes increased by the addition of a little salt. The spirit vapor-bath (§ 630) once a week, is an invaluable adjunct to other treatment of the disease.

974. To fulfill the second indication — to overcome the modified form of inflammation in the bronchial tubes — all sources of irritation must be avoided, as inhalation of dust, excessively cold air, etc. It is in the cure of severe and obstinate cases of this disease that my Golden Medical Discovery has achieved unparalleled success, and won the loudest praise from those who have used it. Its value will generally be enhanced in treating this complaint by adding one-half a teaspoonful of the fluid extract of veratrum (§ 597) to each bottle. Especially should it be thus modified if the pulse is accelerated so as to beat ninety or a hundred times in a minute. The Discovery should be taken in teaspoonful doses, repeated every two hours. When the cough is dry and hard, with no expectoration, it arises from irritation of some of the branches of the pneumogastric nerve, which the Discovery will relieve. It may, however, be aided by inhaling the hot vapor of vinegar and water, or vapor from a decoction of hops, to which vinegar has been added. Although the tightness of the cough may sometimes seem to demand expectorants, yet their use will invariably be attended by injury. If any explanation of their injurious effects is desired, I will refer the reader to § 582, where their action is fully considered. The treatment already advised will be sufficient for the cure of uncomplicated cases.

975. *Treatment of Complicated Cases.* When bleeding from the bronchial tubes occurs, the remedies advised for hemorrhage, in ¶ 950, should be given. If the disease be associated with affections of the *heart* or *kidneys*, or with *asthma*, the treatment prescribed for these diseases will be useful, but they are too serious maladies to be trifled with, and should receive the attention of some skilled specialist.

976. *The Liver* is a very important organ, and derangement of its functions is soon felt, the lungs suffering materially therefrom. Its restoration to health often exerts a wonderful curative influence upon diseases in remote parts of the body. When the Golden Medical Discovery, which has already been advised, is not sufficient to restore this gland to a healthy condition, my Pleasant Purgative Pellets should be taken in doses of one or two every night to secure their alterative effect on the liver.

977. **The Kidneys** often become involved in the disease and fail to secrete and remove from the system broken down materials. The remedies already advised are generally sufficient to restore them to a healthy condition. Should anything farther be required to renew their functional activity, an infusion of queen of the meadow (¶ 559) may be employed; or the acetate of potash (¶ 569) will act well for this purpose.

978. **Menstruation.** The menses are often deranged during the progress of this disease. Their restoration is important; in addition to the treatment already advised I would recommend my Favorite Prescription which is well adapted to restore this function, and will not interfere with, but rather enhance the action of the remedies already advised for this affection.

979. While there are many cases, as has already been seen, that are mild and plain, and can be treated by the patients themselves, there are others which, from their severity, having passed to the second or third stages, or from being complicated with other affections, require the *very best judgment and skill* in their treatment. Many times it is difficult to distinguish chronic bronchitis from other pulmonary diseases; in all such cases as involve difficulty or doubt, I would advise the patient to consult some skillful physician, in whom he may

have confidence, and not endanger his life by trying experiments, nor by procrastination.

980. **Treatment by Specialists.** Physicians making the treatment of pulmonary diseases a special study are usually much better supplied with the necessary instruments and means of investigation and diagnosis, than those employed in general practice, and are better qualified to treat them. Medical and surgical instruments are very expensive and cannot be afforded by those who have little or no use for them, while to the specialist, those belonging to his particular branches of practice are indispensable in consequence of their frequent employment and the greater skill achieved through their use. In selecting a specialist, be careful to consult one who has an established reputation for integrity and skill.

CASES TREATED.

981. **Case I.** Daniel A., aged thirty-five, had been for several years troubled with cough and expectoration, difficulty of breathing and soreness under breast-bone; noticed that going from a warm room into the cold air excited a paroxysm of coughing. Took cold easily, each succeeding one becoming more severe; for several years did not pay much attention to it, until the general health began to fail, and emaciation, loss of strength, cough and difficulty of breathing, increased. Percussion showed increased resonance. Auscultation showed mucous sounds in air passages. *Diagnosis.*—Chronic Bronchitis.

Treatment. Advised the hygienic treatment heretofore laid down, and my Golden Medical Discovery. He persisted in its use for several months, and fully recovered, passing the next winter with no return of his difficulty.

Comment. This case was a simple one, although some little discrimination was required to distinguish it from the initial stage of consumption. The treatment was equally simple and effectual.

982. **Case II.** Geo. R. B., aged twenty, had an attack of acute bronchitis in February, 1873, and although the acute inflammation subsided under the management of his physician, yet he did not fully recover. There was severe cough, with expectoration of large quantities of thick, yellow, flaky matter. Pulse quick, complexion sallow, bowels constipated, skin dry, urine

high-colored and scanty, appetite poor, emaciation marked. By means of the spirometer, aided by auscultation and percussion, a *Diagnosis* of Chronic Bronchitis was clearly made out.

Treatment. Thorough hygiene, warm alkaline-bath (§ 644) twice a week. *Diet*, milk, cream, eggs, beef, Graham bread, oysters, etc. The Golden Medical Discovery, with half a teaspoonful of fluid extract of veratrum added to the bottle, to control the excitement of the circulation, was given in teaspoonful doses every two hours, and two of my Purgative Pellets each alternate night. In addition to this, a pill containing two grains each of quinine and carbonate of iron was given after each meal. He began to improve at once, and in two months was able to be about and attend to light business. All medicine, except the Discovery, was then omitted. He continued the use of the latter for some months, when he was perfectly well, and remains so to the present day.

Comment. It is scarcely necessary to say that this case was a severe one, and had been pronounced consumption by the family physician. Improved methods of diagnosis placed it in its proper light, and led to correct and successful treatment.

983. **Case III.** Mary H., aged thirty, consulted me by letter, in May, 1873. She had severe cough, occurring in paroxysms, attended with great difficulty of breathing. The expectoration was profuse and of a yellowish green color, and very offensive. She had pain and a dragging sensation under the breast-bone, with soreness and a sense of constriction through the chest. Palpitation was experienced on slight exertion. She stated that she was pale, bloodless, nervous and despondent. Her appetite was poor, skin dry and harsh, urine rather copious and pale. There was pain and dragging in the back and loins, and menstruation was scanty, pale, and attended with considerable pain. She also had a profuse leucorrhœal discharge. *Diagnosis.*—Chronic Bronchitis, complicated with anæmia and uterine derangement.

Treatment. Thorough hygiene, the best and most nutritious diet embracing plenty of animal food. The spirit vapor-bath (§ 630) once a week. The surface of the whole body to be sponged with alcohol diluted with water after the sweating had ceased. The Golden Medical Discovery with veratrum (one-half teaspoonful

to each bottle), teaspoonful three times a day, before meals, and a mixture containing iron was given after meals, so that she would take a grain of the pyrophosphate at a dose, and two teaspoonfuls of the Favorite Prescription at night. For the leucorrhœa, Sage's Catarrh Remedy was used as a vaginal injection. Under the influence of this treatment, she slowly and gradually improved. At the end of four months she was so much better that all medicine except the Discovery and Favorite Prescription was discontinued. These she continued for some time longer, until her usual health was regained, and which she still enjoys.

Comment. This case speaks for itself. Uterine derangements are very frequent complications of chronic bronchitis, though amenable to proper treatment. This case is but a specimen of hundreds that annually apply to me either by letter or in person for treatment.

ACUTE PLEURISY.

984. It will be seen by reference to ¶ 73 of this work, that the cavity containing the lungs and heart, and known as the thorax, is lined by a serous membrane called the pleura. This membrane, springing from the root of the lungs, envelops each lobe separately—forms a partition wall between them, (the *mediastinum*), and is thence reflected over the diaphragm (midriff).

Like the lungs themselves, it may become the seat of inflammation. If this membrane is the only part affected we have simply pleurisy. If the lungs share in the inflamed condition we have *pleuro-pneumonia*.

Acute pleurisy may arise from a variety of causes. A violent strain or other injury may induce it. It may occur in consequence of the retrocession of other diseases, as erysipelas, rheumatism, measles, etc. Most frequently, however, it is the result of sudden exposure to cold or dampness, when in a state of perspiration. Fortunately for the sufferer the disorder is usually confined to one side. This is not always the case, however, and when it becomes general, the suffering is great and the probabilities of a fatal termination are largely increased. The severer manifestations are usually ushered in by a well defined chill. Sometimes before, but usually immediately after this, a sharp, cutting or pricking pain is felt in the affected side, with

every effort at inspiration. The lungs are but partially inflated, when the sensation as of a sudden stab causes expulsion of the breath. It is impossible to lie on the affected side. At the same time there is high fever, the pulse being hard, small and rapid, reaching to 120 or 140 per minute. As in fevers, not of a sympathetic character, the tongue is coated, skin harsh and dry and urine scanty. A dry hacking cough harrasses the victim, but he will suppress it as much as possible on account of the pain that attends it. The lancinating pain will indicate the seat of the complaint. It may be underneath the heart, or at a lower point. If in the diaphragm, it will be near the lower part of the chest. After a lapse of time, varying in different cases, the inflamed surface discharges a watery fluid similar to that issuing from a blister. This is called "effusion." When this occurs, the pain is less severe, but the oppression and difficulty of breathing remain. The fever is diminished, the extremities are cold, the cough is somewhat looser, and there is great physical prostration. These are the prominent symptoms of the different stages.

985. **Treatment.** Prompt, domestic treatment, in the initial stages, will many times arrest the disease, and when it does not, will at least lessen its severity and render the labors of the physician easier and his success more certain. In all such cases there is a determination of blood to the affected part. We should, therefore, strive to equalize the circulation. To accomplish this, the spirit vapor-bath (§ 636) will be very useful. My Compound Extract of Smart-Weed is a superior remedy to apply externally to the chest, and also to take internally, as it induces sweating, and, by its anodyne properties, allays pain. Hot fomentations should also be freely applied to the chest, and changed often, to keep them as hot as the patient can bear. The administration of tincture of aconite (596) in doses of two or three drops every hour, will by its powerful sedative and anodyne properties, aid materially in controlling the inflammation and relieving the pain.

As already hinted, however, too great a reliance must not be placed upon domestic treatment. In anything like a severe attack of this disease, I would recommend that the family physician be called. The course advised will be attended with benefit

in every case, but still more active remedies, in more skillful hands, may be needed to accomplish a cure.

WHOOPIING-COUGH. (PERTUSSIS.)

986. This is primarily a disease of the nervous system, involving the respiratory organs through the medium of the pneumogastric nerve. It is considered a disease of childhood, though I have met with it in *old age*. It is eminently a contagious affection and occurs but once during life.

987. **Symptoms.** It is at first manifested by a catarrhal cough, gradually developed. After a while it becomes paroxysmal, generally worse at night. The cough is peculiar, severe, and continued; when a prolonged inspiration occurs, it is accompanied by a peculiar shrill sound—the characteristic *whoop*—which, when once heard is never forgotten. The cough is attended by a copious secretion of glairy mucous, which is brought up at the latter part of the paroxysm. During, or at the end of the paroxysm, vomiting frequently occurs, and sometimes nose-bleed. The cough is so severe at times, that the patient turns purple, gasps for breath, and presents all the symptoms of suffocation. Bronchitis sometimes is a troublesome complication. Immediately preceding a paroxysm of coughing, a sense of impending danger appears to seize the child, and it runs to its mother, or grasps some support as if for protection. Until the paroxysmal character and peculiar *whoop* is developed, the disease is diagnosed with difficulty.

988. **Treatment.** I have found my Golden Medical Discovery to modify the disease and cut it short. The philosophy of its action can be readily understood by its effect on the pneumogastric nerve, as explained under Consumption and Bronchitis. Having had ample opportunity to observe its action and efficacy in the case of my own children, I can recommend it with a confidence which I do not possess in any other remedy. The employment of an infusion of red clover blossoms, in small doses, is of undoubted value in modifying the irritation of the air passages, and may be used to good advantage with, or in alternation with, my Golden Medical Discovery. Indeed, so great is my confidence in these remedies, that I shall not recommend any other. As a matter of course, hygiene must not be lost sight of.

ASTHMA.

989. This is a serious affection; not because of its fatality, for it seldom terminates life, but on account of the suffering it occasions. That the paroxysms, when frequent and severe, tend to shorten life by interfering with the operations of the heart, and thus deranging the circulation, cannot be doubted. Still it is very seldom, if ever, that persons die, as a direct result of the asthmatic spasm.

It is not, properly speaking, an organic lung disease, but merely a nervous affection of the respiratory passages. The seat of the disorder is by some supposed to be in the medulla oblongata (§ 118). This being deranged by congestion, stimulation, or otherwise, the disturbance is transmitted through the cervical and pneumogastric nerves to the air-cells of the lungs, causing spasmodic contraction, and thus rendering the act of respiration extremely difficult. In consequence of this contraction, the inhalation of fresh air is rendered almost impossible.

An attack may come on, with or without premonition. When warning is given, the patient experiences a sense of fullness in the stomach, flatulence, headache, languor, and general nervous irritability. The most usual time for its occurrence is in the night, though it is not confined to it. The patient is first seized with great anxiety, attended by a sense of tightness or constriction of the throat. Then there is cough, and he has to work hard to breathe. He changes his position, sits upright, leans forward upon his knees, jumps up, rests his head upon a table or chair, rushes to the window for air, and gasps and struggles for breath. His face expresses great suffering. The eyes are prominent, and the veins of the forehead are distended with blood. Sometimes the bowels are relaxed. The urine is usually copious and colorless. The voice is hoarse, articulation difficult, breathing—what little there is of it—wheezy. A severe paroxysm of this disease is most distressing to witness; and one unused to it might well suppose that the sufferer was in his last agonies. No definite limit can be assigned, as regards the duration of the paroxysms. They may last but a few minutes, may endure for hours, or with slight remission, continue for days.

990. **Causes.** Asthma is hereditary in *many* cases. In all

instances there must be a constitutional predisposition before an attack can occur. Without this, no amount of exciting causes can produce the result. With it, there are many circumstances which are capable of exciting it, as atmospheric variations, changing from one locality to another, sleeping in certain rooms, inhalation of dust or gases. Many persons are so sensitive, that changing their sleeping apartment from the front to the back side of the house, or coming into the presence of certain animals, as horses, cats, dogs, etc., is enough to excite an attack. Irritation, reflected from various parts of the body, frequently causes it, and it often exists as a complication of bronchitis or heart disease.

991. **Treatment.** This may be divided into palliative and curative. *Palliative* when the relief of the paroxysm is the object in view. *Curative*, when both the relief of the paroxysm and prevention of its recurrence are sought.

For the relief of the paroxysm, an emetic dose of lobelia (§ 573), to be followed by nauseous doses of the same, generally furnish prompt relief, but do not afford immunity from a recurrence. Inhalations of chloroform or ether, are sometimes very efficient and prompt, but in other cases they aggravate the paroxysm. Breathing the fumes of burning saltpetre is sometimes equal to the emergency. Changing from one locality to another will, many times, suddenly terminate an attack. Two brothers of my acquaintance, residing fifteen miles apart, could not visit each other and remain over night without its inducing a paroxysm of asthma, which would be so severe as to necessitate their return home, when the attack would at once cease.

992. *Curative Treatment.* The causes of the disease, when they can be ascertained, should be avoided. When due to climatic influences it can only be *permanently* cured by a change of residence. When due to other diseases, as of the stomach, heart, lungs, uterus, etc., its cure can only be effected by curing the disease of which it is a complication. It is sometimes caused by malarial influences. When this is the case, my Golden Medical Discovery, or that remedy combined with small doses of quinine will be sufficient. Its most frequent cause being irritation reflected through the *pneumogastric nerve*, or its filaments, a relief of this is necessary, and must be accomplished between the attacks. The well-known influence of my Golden Medical

Discovery upon this nerve, as explained under consumption, renders it one of the most efficient remedies prescribed, and its employment for this purpose has been attended with the most gratifying results. In all cases, due attention to the bowels is necessary; if costive, my Pleasant Purgative Pellets, used in very small doses, for a considerable time, so as to secure their alterative influence, are advisable.

993. The irritability of the air-cells themselves often produces frequent attacks, upon the occurrence of the most trivial causes, and thus prevents the efficacy of curative treatment. The addition of two drachms of fluid extract of lobelia (§ 573) to each bottle of Discovery, or the separate employment of lobelia, is generally sufficient to prevent the paroxysms.

CASES TREATED.

994. **Case I.** Mr. J. P. R., consulted me for asthma in 1872. On examination I found it to be due to irritation of the pneumogastric nerve, and prescribed thorough hygiene—care in eating, attention to bowels and skin—with the use of my Golden Medical Discovery. The attacks became less frequent for a month or so and finally the paroxysms disappeared altogether.

995. **Case II.** J. E. C., in 1871, suffered from asthma, in which there was irritability of the air-cells, frequent and severe paroxysms with cough and expectoration. Prescribed the Discovery with two drachms of fluid extract of lobelia to each bottle. Result—a cure in three months.

996. **Case III.** Mary H., aged thirty; asthma complicated with uterine disease and dyspepsia. Began the treatment by appropriate remedies for the uterine disease, which I believed was the exciting cause of the whole trouble; also prescribed remedies to give temporary relief. This treatment soon had the effect of relieving the reflex irritability on which the disease depended, and at the end of three months all medicines but the Discovery and Favorite Prescription were discontinued and the cure completed with these. She remains perfectly well.

DISEASES OF THE HEART. (FUNCTIONAL DISEASES.)

997. Diseases of the heart are classified as either *Functional* or *Organic*. We shall dwell briefly, first, upon purely *functional*

disorders of the heart, which are distinguished by there being no inflammation or disease of its structure. The functional disturbances of the heart are very naturally divided as follows: *Increased* or excited action, *Defective* or enfeebled action, *Irregular* action, and *Neuralgia*, also termed *Angina Pectoris*.

998. Increased action of the heart, indicated by palpitation, or its stronger beating, may be caused *mechanically*, 1st, by distention of the stomach, which, by preventing the descent of the diaphragm, excites the action of the heart; 2d, distention of the transverse colon pressing on the aorta (§ 66, Fig. 41), causing congestion of blood on the left side of the heart; 3d, distention of both these organs which press on the ascending vena cava, hindering the return of blood to the right side of the heart; 4th, enlargement of the liver, producing the same effect.

999. Increased action of the heart may be a *sympathetic* disturbance produced through the nervous system; as, 1st, the emotions and passions may suddenly arouse the heart to excessive action; 2d, the presence of worms in the intestines, improper food, or self-abuse, etc., may be the cause; 3d, it may arise from irritation occasioned by the stimulus of the blood, which may result from two causes, viz., *excess in quantity*, as in a plethoric state of the system, due to morbid activity of the nutritive functions, or *change in quality*, in consequence of the morbid condition of other organs. A temporary excess in quantity may be due to cold, or congestion from overdoing and exhaustion; but more commonly, in plethoric persons, the palpitation of the heart is in consequence of an overplus of red corpuscles of the blood, and the condition then is permanent. Increased action of the heart is often caused by an alteration of the quality of the blood by retention of matters which should be excreted; in case of faulty action of the kidneys, alkalies or acids may be retained in the blood. Suppression of perspiration or retention of bile sometimes produces the same results. The use of tea, tobacco, and alcoholic drinks, excites the heart. Deficiency of the blood, as in anæmic persons, may be the cause of palpitation of the heart.

1000. Increased action of this organ may be due to enhanced irritability of the heart itself. Its muscular fibers possess a peculiar nervous endowment, and its sensitiveness when unduly

exalted, easily responds by quicker action, and it is generally associated with an increased sensibility of the nervous system.

1001. Functional disturbance of the heart's action is manifested by palpitation, acceleration, irregularity, intermissions, a rolling or tumbling movement and a feeling as though the heart was in the throat. These disorders give rise to great apprehension, worry, anxiety, fear, depression of spirits, and mental states which predispose to organic disease of the heart. The belief that the organ is diseased in its structure tends to develop such lesions, and hence it is extremely desirable to be able to determine with certainty whether the derangement be a case of mere functional difficulty or of actual disease.

1002. **Treatment.** The curative treatment of functional disorder of the heart must have reference to the causes producing it. If the physician does not have a knowledge of all the circumstances connected with it, hygienic management will be of no avail. If it is in consequence of indigestion, domestic management must improve the appetite and digestion, by observing regularity in the time of taking the meals, and preparing very easily digested food. The use of strong tea, coffee, tobacco and spirits should be interdicted, and regular exercise, rest and sleep must be enjoined. The physician will prescribe such tonic and alterative remedies as the patient can bear, and adapt a treatment suited to the dyspeptic condition of the stomach.

1003. When functional disorder of the heart is caused by excess of blood and inordinate activity of the nutritive functions, the patient must practice abstinence in diet, and increase the amount of physical exercise. There are few who are willing to practice such self-denial, but it is imperatively necessary. Lessening the amount of nutritive supply, and increasing the expenditure of the system by mental and physical labor, will in time diminish the superabundant volume of blood, and lessen its immoderate stimulus. In all cases the domestic management must include daily bathing, exercise in the open air, regular habits, and the avoidance of all known causes which tend to excite the heart's irregularity.

1004. *The Remedial Treatment* of these functional disorders ought to be confided to some experienced physician, to whom a full history of all the attending symptoms should be carefully

given, and who then will be able to judge correctly of the causes which produce the disorder. He can also connect it with the circumstances and condition of the general system, and prescribe remedies which may obviate derangements, and restore all the organs to health. This course of treatment, it is obvious, cannot be pursued with advantage by the non-professional; the remedies are not within the ordinary reach of all families, nor if they were, would they have sufficient experience and knowledge to select and rightly administer them. For these reasons I advise them to apply for their treatment to those who have had experience, and who are entitled to their confidence.

ORGANIC DISEASES OF THE HEART.

1005. By organic disease I mean disease pertaining to the heart itself, in contradistinction to *functional* disease which has reference merely to the *action* of the heart. The heart is subject to various organic diseases, among which we may mention Hypertrophy, Dilatation, Atrophy, Fatty Degeneration, Valvular Lesions, Pericarditis and Endocarditis.

1006. **Hypertrophy**, from its Greek derivation, signifies to *overnourish*. By hypertrophy is understood a thickening of the muscular substance of one or more of the cavities of the heart. In chronic diseases the region in front of the heart is generally prominent; the pulsations are observed to extend over a larger space than is natural, and the vibrations can be plainly felt when the hand is placed upon the cardiac region. The pulse is usually strong and full. Hypertrophy is of itself seldom fatal; it rarely proves so, except from causes which have given rise to it, or from diseases which it may induce in other organs. It may exist to quite a considerable extent, without any symptoms which would lead a person to suspect the existence of disease. Hypertrophy is often combined with dilatation and contraction of the heart, or ossification of the valves.

1007. **Dilatation** in most cases arises from weakness of the muscular walls, fatty degeneration, etc. In this affection the chief symptom is weakness of the action of the heart, as shown by a feeble pulse; but when dilatation is combined with hypertrophy, the pulse is strong, full and hard, and the beat of the heart becomes more and more tumultuous.

1008. **Atrophy** is the opposite of hypertrophy, and signifies a wasting away, or a diminution in the thickness of the walls of the heart. Its muscular power is diminished in proportion to the degree of atrophy.

1009. **Fatty Degeneration** is the deposition of particles of fat within the sarcolemma (the sheath which invests a fibre) and are substituted for the proper muscular tissue. If the fatty degeneration exists to any amount, the muscular walls present a yellowish color, and the heart is soft and flabby. This may be confined to one ventricle, or it may affect the inner layer of fibres, the outer layer remaining unchanged. Degeneration of the left ventricle occasions feebleness of the pulse, and the heart is enfeebled in proportion to the disease. Difficulty in breathing is one symptom of this disease, especially when the right ventricle is affected. Symptoms resembling those of apoplexy, such as a pallid surface, feeble circulation, etc., have been observed in persons who have died of this affection. Fatty degeneration is more liable to occur in corpulent persons, and between the ages of forty and fifty years.

1010. **Valvular Lesions.** I have already noticed enlargement of the heart under the head of *hypertrophy*, which occurs independent of valvular lesions. I shall now consider the enlargement of the heart when it is *dependent* upon valvular lesions. These are generally on the left side of the heart at the mitral and aortic orifice, (Fig. 41, ¶ 66). The valvular curtains are frequently thickened, or they become more or less rigid, with a calcareous deposit. The valves may be diminished in thickness, and they are then liable to rupture. The different alterations of structure, of the valvular lesions, may be arranged into 1st, obstructive lesions, which impede the flow of the blood, by producing contraction of the orifices; 2d, regurgitating lesions, which interfere with the functions of the valves, allowing backward currents; 3d, lesions which both impede the flow, and allow backward currents; 4th, lesions which give rise to morbid sounds by roughening the surface over which the blood flows. The first symptoms incident to obstructive or regurgitating lesions, are observed in the respiratory region. The patient seldom complains of palpitation, since he has become accustomed to the gradual increase of the heart's action. There is rarely much pain during

the progress of mitral lesions, and sooner or later, if life be prolonged, dropsical effusion takes place in the areolar and serous tissues, and the limbs and body become greatly swollen.

1011. **General Dropsy**, arising from mitral lesions, occurs after enlargement, by dilatation, of the right side of the heart, has taken place. Dropsy, caused by cardiac affection, happens in but a small proportion of cases of aortic lesions. Valvular lesions, associated with enlargement, are unfavorable. The symptoms which denote danger differ according to the location of the valvular lesions.

1012. **Pericarditis** is inflammation of the membranous sac which surrounds the heart, and may occur under two forms, viz: 1st, Acute; 2d, Chronic. The symptoms in acute pericarditis are made up from co-existing affections, and are frequently associated with articular rheumatism, Bright's disease of the kidneys, or pleuritis. The intensity of the pain varies in different individuals. The action of the heart is increased, the pulse is quick, and vomiting sometimes takes place. When this disease is developed in the course of rheumatism, it is known as rheumatic pericarditis, which is almost always associated with endocarditis. In some cases acute pericarditis is very distressing, in others it is mild. The fatality is not due so much to the disease itself, as to co-existing affections. If it does not prove fatal, it sometimes becomes chronic.

In chronic pericarditis pain is seldom present. The heart is more or less enlarged, its sounds are feeble, the first weaker than the following one, short and valvular.

1013. **Endocarditis** is inflammation of the lining membrane of the heart. The right cavities are seldom the seat of inflammation, and never without the left cavities are inflamed. In this disease the action of the heart is increased and manifest to the touch. The pulsations are rapid and strong, and generally irregular, unequal, and intermittent. Endocarditis occurs in connection with acute articular rheumatism, and is often associated with pericarditis. Pain about the region of the heart is not constant, and is rarely a prominent symptom, but when present, it is dull, not sharp as in pericarditis. In acute articular rheumatism, not associated with pericarditis, it involves no immediate danger. It may, however, be the foundation for

valvular lesions, which, after months or years, may cause serious consequences.

1014. **Angina Pectoris**, otherwise termed *Neuralgia of the Heart*, might be included among the diseases of the nervous system, but as it is usually associated with a disorder of the action of the heart, it should properly be noticed in this connection. This affection is usually characterized by severe pains about the sternum (breast bone), which radiate in different directions. The pain differs in intensity, sometimes being very acute, at others assuming a milder form. The action of the heart is more or less disturbed. The beats are irregular, at times being strong, while again they are feeble. A feeling of numbness is experienced in those parts to which the pain penetrates. The countenance indicates suffering. These paroxysms *usually* continue but a few minutes, although they sometimes last several hours. Persons suffering from angina pectoris are liable to sudden death. It is connected with ossification, or other morbid affections of the heart. Usually these paroxysms, if the life of the patient continues, become more and more frequent. This affection is contingent upon *organic disease* of the heart; indeed it has been questioned, if it ever occurs unless there be organic disease of some kind present. The danger is not to be measured by the intensity of the pain, but by the co-existing organic disease. Although it is not absolutely certain that it is present in all cases of angina pectoris, yet the exceptions are so rare that when the signs of organic disease cannot be detected, it may be inferred that angina is not the real affection, or that the existing lesions escape the observation. The patients suffering from this disease are, in the great majority of cases, of the male sex, and rarely under the age of forty.

1015. **Treatment.** In the foregoing consideration of organic diseases of the heart, I have omitted to speak of their remedial management, for the obvious reason that non-professional readers are unable to correctly distinguish between the various diseases of that vital organ; and it would therefore be useless for me to attempt to instruct them as to the medical treatment of the different cardiac affections. The specialist, whose sense of hearing is in daily training, by the constant practice of auscultation (§ 683), is alone competent to translate the

abnormal sounds given off by the heart into signs of specific diseases of that organ. Many of the diseases affecting the heart, which but a few years since were regarded as incurable, are, in the light of more recent investigations and discoveries, very amenable to treatment. We now possess medicines that unmistakably produce a specific effect upon the tissues of the heart, and, when skillfully applied, their employment is frequently attended by the most happy results. A very large number of well marked cases of organic disease of the heart have been permanently cured by the Faculty of the World's Dispensary, affording positive evidence that some forms of organic cardiac affections are quite as curable as most other chronic diseases. The remedies which have enabled me to accomplish such remarkable cures, are known to but a small part of the medical profession, and by many of those who do employ them for other purposes, are not known to possess properties which render them specific in diseases of the heart. For the special benefit, therefore, of my medical readers, and through them, that a blessing may be conferred in the relief of many sufferers, I cannot refrain from incidentally referring at this point, to two or three of those which I regard as among the most valuable remedies of recent discovery. As deserving of conspicuous mention is *Collinsonin* (§ 565). Although all the serous tissues of the body are acted upon by this most valuable medicine, yet its most specific effect I have found to be upon the serous membrane lining the heart and covering its valves. Serous tissues, as my professional readers are aware, are ramified by small capillaries which, when diseased, allow exudations to ooze out and become organized, thereby producing thickening and enlargements, results which frequently follow inflammation of the *peritoneum*, *pleura*, *endocardium* (lining of the heart), *pericardium* (heart case), and other serous membranes. Collinsonin produces absorption of the exuded matter and thus removes the abnormal condition. From its specific action upon serous tissues, physicians will readily understand how they can utilize this valuable agent in many of the diseases affecting the serous tissues, not only of the heart, but of other parts. To illustrate the positive effect produced by this medicine, I will mention the case of Mrs. B., a lady aged about thirty-five, who was so much oppressed with valvular disease of the heart that she could not

walk up stairs or otherwise exert herself actively, without suffering severely. I administered collinsonin and she gradually and fully recovered from the disease. Collinsonin is not only efficacious in organic disease of the heart, but from a controlling influence which it exerts through the pneumogastric nerve (§ 119, Fig. 59), which presides over the action of the heart, it is also a sovereign remedy in functional diseases of that organ.

1016. *Cactus Grandiflorus* (*Night-Blooming Cereus*), is another invaluable agent which I employ in treating these formidable affections. It is very little known, however, to the medical profession as a remedy for such disorders. By a large experience in the use of this agent, I am satisfied that it increases the nutrition of the heart and thus strengthens it in the performance of its functions. Hence the happy results following its employment in atrophy of the heart.

Veratrum Viride (§ 597), in very small doses, is also a specific heart tonic.

My Golden Medical Discovery also contains an ingredient that exerts a very manifest influence in diseases of the serous tissues of the heart, and also in those where a heart tonic is required. Feelings of pressure and weight in the region of the heart, difficult breathing, palpitation and the fear of impending danger which they occasion, are promptly removed by the use of this compound.

DISEASES AFFECTING THE DIGESTIVE SYSTEM.

1017. Existence implies an organism which is capable of manifesting life. To increase the growth of organized existence, and furnish it with the conditions of its vital manifestations, food is essential. This must be digested, absorbed, mysteriously animated, and become a part of the structure, which, by various organs, separates the equivalents of its own being into higher and subtler elements; a process which yields also a remainder of waste and decay. This transformation of food into life must be a constant procedure, and it brings into active co-operation many distinctly separate organs,* which constitute the digestive system, and are liable to become either functionally or structurally diseased.

* The important organs of digestion are concisely stated in § 44, together with a description of the anatomy and physiology of each.

SORE MOUTH. (STOMATITIS.)

1018. Stomatitis—inflammation of the mucous membrane of the mouth—may include the entire surface of the gums, tongue, and cheeks, or appear only in spots. Vesicles are formed, having swollen edges and a white or yellow center, which finally ulcerate. When mild, the affection is confined to these parts.

1019. If the inflammation be acute, the mouth is dry and parched, or, as is more frequently the case, the flow of saliva is abundant and acrid, and, when swallowed, irritates the stomach and bowels, producing fever, diarrhoea, griping pains and flatulence. The tongue is either coated white, or red and glossy, and the sense of taste is considerably impaired. Digestion and nutrition are then disturbed and the patient rapidly emaciates.

1020. **Thrush, or Canker**, is that form of stomatitis in which white ulcers locate on the inner side of the upper lip, the tongue or roof of the mouth; the irritation which they cause, not only interferes with eating, but produces fever, together with the symptoms previously mentioned.

1021. **Apthæ**, or follicular inflammation, is distinguished by very painful little ulcers, single or in clusters, scattered over the surface of the tongue and lining of the mouth. Sometimes it is complicated with little lumps in the tongue. These form ulcers, and denote scrofulous inflammation. Fissures and cracks in the tongue indicate derangement of the stomach.

1022. **The Causes** of stomatitis, in nursing infants, are unhealthy milk, or effete matter, which, for lack of proper care and cleanliness, accumulates upon the nipple. In older children, improper diet, irritants, as mercurial medication, debility of the digestive functions, or hereditary syphilitic taint, disorder the blood and induce local inflammation.

1023. **Treatment**, locally, use a wash of golden seal, made sweet with maple-sugar, and slightly alkaline with borax or salæratu. Also use a very weak alkaline tea, or one of slippery-elm flour, to obviate the acidity of the secretions. If the sores do not heal, constitutional treatment may be required, as the use of the Golden Medical Discovery. It is proper to consult with the family physician, if the sore mouth resists all these remedial measures.

NURSING SORE MOUTH. (STOMATITIS MATERNA.)

1024. During the period of lactation (nursing) and sometimes in the latter month of pregnancy women are liable to a peculiar variety of sore mouth. The soreness is sometimes so great that, although the appetite may be ravenous, the patient cannot eat. When this condition extends to the stomach and bowels, symptoms of a very grave character appear, and the disease, by interfering with the process of nutrition, causes emaciation and debility, and in extreme cases, death. It is a strange affection, nearly always disappearing upon weaning the child, though this course is not absolutely necessary. It appears to depend upon a hepatic, or gastric derangement, in connection with a vitiated condition of the blood, though how this is brought about is unknown.

1025. **Symptoms.** The disease sometimes comes on suddenly, at others more slowly. The fact that the woman is either pregnant or nursing, is of importance in distinguishing it. At first there is a severe, scalding sensation of the tongue, mouth and fauces, with pain, which is sometimes intense. The color of the tongue is often pink, or a light red, while the mouth is generally of a deeper hue. This stinging, biting sensation is accompanied by a profuse watery discharge from the mouth, which seems extremely hot and acrid, causing excoriation whenever it comes in contact with the face or chin. The appetite is good, sometimes ravenous, but food or drinks, except of the blandest character, occasion such intense pain that the patient avoids their use. Ulceration occurs after a little time. The bowels are generally constipated, but when the disease extends to the stomach or intestines, diarrhœa occurs. There is generally anæmia, debility and impairment of the vital powers.

1026. **Treatment.** The indications for treatment in this affection will be (1) to overcome the vitiated condition of the blood, and (2) to sustain the vital powers. The remedies for these purposes will be alteratives, antiseptics and tonics. For the first indication, give my Golden Medical Discovery, the value of which may be greatly enhanced by adding one-half ounce of the fluid extract of baptisia (§ 506) to each bottle, when the dose of medicine as modified, will be a teaspoonful four times a

day. Chlorate of potash,—half an ounce in a pint of water — used as a wash and gargle, will be of great value. A teaspoonful of the same may be swallowed several times a day, and will not interfere with other medicines. To fulfill the second indication, the muriated tincture of iron (§ 618), in five to ten drop doses, diluted with water, may be taken three or four times daily. Quinine (§ 496), in one or two grain doses, may be given with the iron if the debility is extreme. When there is great acidity of the stomach, which will be known by heart-burn and distress in that organ, salæratu§ (§ 475) may be taken in water, to neutralize it, but should not be drank within an hour of the time for taking other medicines. If constipation prevails use my Purgative Pellets. This course of treatment, well carried out, will seldom fail in effecting a perfect cure, without weaning the child, yet the latter course will sometimes become advisable and greatly promote the recovery of the patient. Should the treatment advised not produce the desired result, a skillful physician's services should be secured, as he may, in individual cases, distinguish farther important indications which will enable him to modify the treatment to advantage.

DISEASES OF THE STOMACH.

1027. If the reader will turn to § 51, he will find a description of the anatomy of this important organ, which, by its hidden power, inaugurates the initial changes which finally convert food into a part of ourselves. It has been remarked, "The stomach is the distinguishing part between an animal and a vegetable; for we do not know any vegetable that has a stomach, nor any animal without one." If Dr. John Hunter's observations had been more extended, he might have found plants that would catch, dissolve and digest, flies and insects, proving that the function of digestion in some plants is supplemental, and resembles that of animals. The *sarracenia*, *nepenthes*, *drosera*, and other plants, are furnished with various kinds of traps and snares for the unwary insects which they catch and digest.

1028. There is an intimate connection between the stomach and brain. The former is the seat of universal stimulus and irritability, as much as the latter is of sensibility. Their intimate relation is illustrated by the fact that some cannot hear of an

accident, or of any distressing circumstance, without experiencing sickness or vomiting. And it is equally strange that an injury of the tendons and ligaments, which have little sensibility, affects the stomach more than an injury of the muscles, which possess much greater susceptibility to pain.

STRUCTURAL DISEASES OF THE STOMACH.

1029. Those affections which implicate the coats of the stomach are designated as *structural*. The stomach is liable to become the seat of a *Gastric Ulcer*, the symptoms of which are similar to those of acute gastritis. If small, it is of a round or oval form, and liable to eat through the coats of the stomach, when it is known as the perforating ulcer. The pain is of a burning, gnawing character, experienced especially after food has been taken. Vomiting is a common symptom and the matters emitted are tinged with blood.

1030. **Carcinoma.** Cancer of the stomach does not occur so frequently as gastric ulcer, and may be distinguished from it by a *lancinating* pain, and tenderness over the epigastrium. Vomiting occurs in both affections, and in the latter stages of cancer, food, blood, and pus are so mingled as to resemble coffee grounds. It can be distinguished from dyspepsia, because in the latter affection there is no vomiting of blood or pus, nor so great emaciation or pallor.

1031. **Dilatation.** Dilatation of the stomach may be caused by a closing of the pyloric orifice (Fig. 28), on account of the thickening of its walls or the intervention of some foreign substance.

Symptoms. Vomiting at intervals, when a great amount of imperfectly digested aliment, which emits a putrescent odor, is ejected. The stomach is full and prominent, and pressure upon it causes the liquids to fluctuate and give out a splashing sound. Generally the appetite is not impaired.

1032. **Softening.** Softening of the mucous coat of the stomach is a rare affection and is not attended by inflammation. It may be distinguished from gastritis by the absence of all putrescent odor when vomiting occurs, and by an inability to retain solids upon the stomach. It is very liable to involve other structures of the stomach, and when it affects children,

it gives rise to symptoms of cholera infantum. In older persons, death may occur from starvation, because of the inability to retain solid food upon the stomach.

1033. **Induration.** The walls of the stomach may thicken and harden in consequence of a morbid deposit of fibroid substance under the mucous tissues. This is the result of chronic inflammation, generally caused by the use of ardent spirits. The use of such beverages incapacitates the stomach for churning the food and the patient becomes dyspeptic. It rarely occurs in persons under forty years of age, and is an affection difficult to diagnose. The danger depends upon the extent of the disease and the severity of its symptoms. The cause of death in such cases is indigestion and consequent exhaustion.

1034. **Treatment.** In gastric ulcer, regulate the diet and use nutritive food, such as can best be retained by the stomach. Milk and vegetables are adapted to this purpose. A drink of slippery-elm, or of lime-water and milk should be used, and if there be great thirst, small pieces of ice may be given. Mutton broth is nourishing as well as unirritating, and injections of it sustain the strength. The treatment of *cancer* is only palliative, and should have reference to the comfort of the patient and the prolongation of life. The hygienic management consists in furnishing a bland, nutritious diet, keeping the skin clean, and using such remedies as relieve pain and gastric irritability as the trisnitate of bismuth and anodynes. In *dilatation* of the stomach the treatment consists in regulating the diet and using tonic remedies. In *softening* of the stomach, the careful adaptation of the food and use of antiseptics is recommended. In *induration*, the treatment must be palliative; relieve the irritation, abstain from stimulants and regulate the diet. All the above affections may be benefited by the use of those agents which increase the digestive powers, as pepsin, ptyalin and those acids found in the gastric juice. These agents are digestive solvents and prepare food for undergoing vital changes. All the minute symptoms of such diseases should be reported to the physician that he may be able to furnish appropriate remedies and digestive fluids which will relieve the patient, prolong life and sometimes cure the disease.

INFLAMMATION OF THE STOMACH. (GASTRITIS.)

1035. Gastritis is generally defined as an inflammation of the mucous membrane of the stomach. The cellular, muscular, and serous tissues are all liable to be more or less affected. Gastritis may be either *acute* or *chronic*. Either form is a distinct modification of disease, manifesting peculiar symptoms and requiring special remedies.

1036. *Acute Gastritis* generally occurs as a result or accompaniment of other diseases. It is an occasional feature in scarlatina, serious cases of bilious fever, and in cutaneous affections of every description. The mucous membrane of the stomach is a continuation of the skin, and is placed in intimate communication with all the vital organs, by means of the solar plexus (§ 124, Fig. 60); hence this sympathy between the stomach and skin, and the morbid condition of the stomach occasioned by the disease of other organs.

1037. **The Early Symptoms** of acute gastritis are a burning sensation in the stomach, accompanied by nausea and frequent vomiting. The respiratory movements are rapid and shallow, the pulse is hard and short, and as the disease progresses, becomes small, frequent, and thready. The tongue usually retains its natural appearance, but is sometimes dry and tinged with a vivid scarlet at the tip and edges. Intense thirst and hiccough are occasional symptoms. The facial expression is haggard, and indicative of the most intense suffering. The stomach will not retain the mildest liquids. In the early stages of the disease, the ejections consist of chyme and mucus, streaked with blood. As it progresses, the vomiting becomes a sort of regurgitation, the contents of the stomach being ejected without any apparent nausea or effort. The ejections then consist of a dark-colored granular matter, resembling what is known in yellow fever as *black-vomit*.

1038. **Causes.** Formerly it was supposed that this was a very common disorder, and the term "acute gastritis" was applied to every development of symptomatic fever. But late clinical and pathological investigations clearly indicate that acute gastritis is of quite rare occurrence. It may be caused by the excessive and habitual use of alcoholic drinks, especially if taken

without food, by copious draughts of cold water, or by intense emotions. But its *general* cause is the ingestion of irritating and corrosive poisons.

Where the former causes are known not to exist, the presence of poison should always be suspected. As it frequently becomes a matter of legal investigation, it is very important that the practitioner should be able to determine the *real* origin. If caused by poison, the disease will be very suddenly developed, the patient complaining of a very intense burning sensation in the throat and the lining membrane of the mouth, which will generally show the action of the poison. A diarrhœa is also more apt to accompany the disease. If inorganic or vegetable poisons are the known or suspected irritants, the appropriate antidotes should be promptly administered. For a list of the principal poisons and their antidotes, with practical suggestions for treatment, the reader is referred to the article in this volume, on Accidents and Emergencies.

1039. **Treatment.** This inflammation needs to be allayed, and a tea made of peach-tree leaves (§ 599) will be found to be very serviceable. Small pieces of ice, swallowed, will allay the thirst and vomiting, and a mucilage of slippery-elm, made from superfine elm flour, is very soothing to the inflamed mucous membrane. It is an important disease, and its management should be entrusted to a skillful physician.

CHRONIC INFLAMMATION OF THE STOMACH.

1040. *Chronic Gastritis* is often mistaken for dyspepsia and gastralgia. It is very necessary to discriminate between these diseases, as the appropriate remedies for the latter will only aggravate and augment the former.

A chronic inflammation of the stomach is a very common disorder, and has many phases, but the term chronic gastritis is applied only to that species of inflammation occasioned and accompanied by irritation. It is seldom a sequence of the *acute* form. It may exist many years and the patient still remain in apparent good health.

1041. **The Symptoms** of chronic gastritis are various and equivocal. Among those which are prominent and universal we may mention an irregular appetite. At times it is voracious,

and the patient will consume every available article of diet, while at others he will experience nausea and disgust at food. Even when very hungry, one mouthful of food will sometimes produce satiety and cause vomiting. The appearance of the tongue is variable,—sometimes natural, at others thickly coated. The desire for drink is capricious, varying from intense thirst to indifference. Another prominent symptom is a sense of heaviness and heat in the epigastric region, after partaking of food. Often a small quantity, as a teaspoonful of milk, will produce a sensation of weight, as of a heavy ball lying at the pit of the stomach. This symptom is frequently accompanied by a frontal headache, with a small and wiry pulse. Dull or shooting pains are experienced, and the patient becomes weary, melancholy and emaciated.

1042. **Causes.** The general cause of chronic gastritis is excess in eating or drinking. Great mental excitement predisposes the system to this affection. Occasionally it is a sequence of febrile diseases, as scarlatina, typhoid fever, etc. In some families there is a constitutional tendency to its development.

1043. **Treatment.** All medicines which tend to augment the irritation of the stomach, should be studiously avoided. The bowels should be kept regular, and the skin clean by frequent bathing. Stimulants of all kinds must be avoided. As a principal article of diet, unless the disease be caused by the use of alcoholic drinks, I would recommend rare cooked beef, as it is both nutritious and easily digested. In a word, the food should not contain much liquid, but should be mild and nourishing, and taken in moderate quantities. If these precautions are observed, nature will sometimes effect a cure. Other suggestions applicable to its domestic management, may be found under the hygienic and remedial treatment of dyspepsia, to which I refer the general reader.

NEURALGIA OF THE STOMACH. (GASTRALGIA.)

1044. **Gastralgia** may be defined as a neuralgic affection of the stomach, unaccompanied by inflammation. It is often mistaken for chronic gastritis, although there is a marked difference in the symptoms.

1045. **A Prominent Symptom of Gastralgia** is a *paroxysmal* pain, radiating from the epigastric region, to all

parts of the thoracic cavity. The pain is lessened by walking, lying on the left side, or by gentle pressure, and usually abates after eating, but is renewed in a few hours. The patient then experiences a sense of heaviness at the pit of the stomach, nausea and frequent salty eructations. The tongue is white, the appetite variable and there is no desire for liquids. The sleep is usually refreshing, and when not suffering from acute pain, the patient is apparently well.

The *Distinguishing* symptom of this disease is a feeling of despondency, often amounting to an utter disgust of life, or it may be, a morbid fear of death.

1046. An effectual way of discriminating between gastralgia and chronic gastritis is by the administration of a diffusible stimulant. If gastritis be the disorder, the pain will be augmented; if gastralgia, it will be relieved.

1047. **Cause.** The cause of gastralgia is a local or sympathetic irritation of the nerves distributed to the stomach.

1048. **Treatment.** The pain of gastralgia is sometimes allayed by using half a teaspoonful of subcarbonate of bismuth, and repeating the dose, if the attack be not relieved. Or take twenty grains of quinine, combined with one drachm of prussiate of iron, and divide it into ten powders, and administer a powder every three hours until the pain is completely arrested. Temporary relief may be experienced by using one-quarter of a grain of morphine, or two or three drops of chloroform in a teaspoonful of glycerine, slightly diluted, and take it for one dose. Then follow with constitutional treatment. One of the most effective remedies for this purpose is that invigorating tonic and alterative, the Golden Medical Discovery. The patient must be careful of his diet, and not overindulge himself in food, which should not only be of a nutritious kind, but easy of digestion. The general health, as relates to regular habits, cleanliness, suitable clothing and bodily warmth, exercise and rest, must not be neglected. Sometimes it proves to be a lingering chronic complaint, which can be best overcome by pursuing a steady, even-handed course of hygienic treatment. Every thing calculated to promote the tone of the digestive organs, and improve the functions of the system generally, may be considered advantageous in remedying this neuralgic affection.

DYSPEPSIA.

1049. It is generally conceded that a multitude of human ailments arise from *indigestion*, and in its various forms it taxes the skill of the physician to prescribe the proper remedy. It is undeniable that the closest intimacy exists between happiness and good digestion. A healthy digestion aids materially in making a cheerful spirit, and the "feast of reason and flow of soul" is due as much to the functional integrity of the stomach as to a strong and generous mental organization.

1050. Dr. Johnson severely said: "*Every man is a rascal as soon as he is sick.*" If people did not treat each other as though this was true, there would be neither cuteness nor severity in the remark. All are conscious that morbid acidity of the stomach roils the disposition and excites tart sayings. And likewise, an irritable temper and suddenly aroused passions will not only turn sour the sweetest stomach, but even poison the secretions (§ 209). Anxiety, excitability, fear and irritability, are disturbances of those propensities which cause the perversion of physiological processes (§ 168). To sweeten and gladden the mind by animating the emotive powers, tends to correct morbid acidity of the stomach.

1051. Every intelligent, observing person, as well as the wisest philosopher, knows that a large proportion of dyspepsia cases originate in, and are perpetuated by, a morbid activity of the basilar faculties. If otherwise, then why is it that persons of a certain mental constitution are so prone to dyspepsia. Mental disquietude is only an indication of the morbid activity of these semi-animal faculties, or else of their natural preponderance, which, when united with imagination, are prolific of visionary troubles. We see some people who are constantly anxious, unfortunate, discouraged, when they are all this time prospering finely; to gratify these low faculties they have to actually *borrow* affliction. If they don't fret about their own misfortunes they will generously dwell upon the perplexities of others. No wonder they are afflicted with dyspepsia and increase their morbid sensibility by closely watching every symptom of indigestion.*

* Some people digest their food well, yet are always complaining as though they were sufferers from morbid sensibility of the stomach; while there are others whose digestion is imperfectly done, but who never complain.

1052. The general truth of these propositions will be appreciated by contrasting these languid, lean, lank, nervous victims of indigestion and domestic infelicity—confirmed dyspeptics—with the fresh, vigorous vitality of the opposite class, whose rotund figures, bright eyes, dimpled cheeks, buoyant spirits, hopeful, sparkling thoughts, and graceful physical movements, so replete with ease and elegance—the poetry of motion,—all indicate the soundness and perfection of digestion. The latter make

“The glad circle round them yield their souls
To *festive* mirth and wit that knows no gall.”

1053. The slightest functional disturbance of the stomach will derange, more or less, all the succeeding operations of alimentation, tending to the vitiation and impairment of the delicately susceptible vital processes of nutrition. Dyspepsia may commence and proceed so insidiously as not to excite the suspicion of friends, although the patient generally desires active treatment, such as cathartics, emetics, and medicines to act upon the liver. When the disease becomes confirmed, it presents us some of the following symptoms: weight, uneasiness and fullness in the region of the stomach, attended by impatience, irritability, peevishness, sluggishness, anxiety, or melancholy; there is impairment of the appetite and taste, also sourness, flatulence, and perhaps frequent attacks of colic, loss of hope, courage, ambition, and increasing apathy, drowsiness, and frightful dreams, are symptoms common to the different stages of this disease. There are then the accompanying symptoms of a coated tongue, bitter taste of the mouth, offensive eructations, scalding of the throat from regurgitation, offensive breath, sick headache, giddiness, disturbed sleep, sallow countenance, heart-burn, morbid craving after food, constant anxiety and apprehension, fancied impotency, and frequent change of mind; they imagine that they want medicines to work upon the liver, desire active treatment, are endlessly experimenting in diet, daily rehearse their symptoms, and are morbidly sensitive; if there be doubt in their minds as to whether they are genuine dyspeptics, they ask the opinion of a physician in whom they have perfect confidence, and when it is candidly given they will, ordinarily, be satisfied with it for fifteen minutes; but for any greater lapse of time, it

will be less and less conclusive, more and still more unsatisfactory. This unbelieving state of the mind clearly indicates that an irritation of the stomach excites the animal faculties rather than the emotional.

1054. **Causes.** Overtasking the system, overloading the stomach, use of improper food, as stale vegetables and meats, unripe fruits, indigestible articles, etc., improperly prepared food, irregular meals, disorderly habits, the use of alcoholic stimulus, overtasking the mind, loss of sleep, self-abuse, irritable temper, unhappy frame of mind, inordinate ambition leading to efforts disproportioned to the physical strength, are all circumstances which give rise to indigestion. If the functions performed by the skin are embarrassed, by cold, tight clothing, or lack of cleanliness, the nutritive changes cannot properly take place throughout the body, and consequently the digestive functions are embarrassed, as the revolutions of a water-wheel are impeded by the "backset" of the water. When food is not duly masticated, it is not properly salivated with the alkaline fluids of the glands of the mouth, and is not prepared for digestion by the acids of the stomach.

1055. This principle holds true, that whatever diminishes the general strength, impairs the health, or encroaches upon the functions of life, also hinders the perfect solution of food and disturbs in a measure the function of digestion. Whatever diminishes the normal amount of the alkaline secretions of the salivary glands, and of the gastric juice, or perverts their quality, deteriorates their solvent properties and is a cause of dyspepsia. This must be borne in mind in selecting remedies.

1056. After the solution of food, and before its absorption and appropriation as chyle, it is quickened into newness of life by the sublime alchemy of vital transformation, by the nutritive process of *catalysis*. By it, dead animal or vegetable protoplasm is magically endowed with the property of life, indispensable for the regeneration of our bodily tissues, and to fit and continue them in their inscrutable sphere, under the dominion of sensation and will. To comprehend this function is to understand the mystery of nutrition, for by the presence of certain animated cells or living material, a vivifying metamorphosis, necessary to our renewal and life, takes place, which change is everywhere

known as *vital catalysis*. Life is established and perpetuated by life, and without such a process there can be no nutrition. The *chemical* part of digestion is dissolving food and reducing it to a *soft, pulpy, cream-like, plastic fluid*, but the vitalizing of this mass, or a certain portion of it, is the result of *catalytic action*,—an organic exercise or function, which we do not, as yet, understand.

1057. In thus referring to this wonderful physiological process, I do it in part to show why some kinds of restorative medicines, which alter, counteract or destroy poisons in the blood, or even neutralize them, are called catalytic remedies. The very fact that they work out a peculiar and converting or transforming change in the blood, and arrest the morbid tendencies to disease, shows that their remedial function entitles them to such a significant name. A remedial catalytic action is one that destroys original or acquired poison, and such remedies are given, not to supply a want in the system, but to strike at the root of an evil. In this sense they are recognized as the surest and most potent class of remedies employed in the treatment of all diseases of the blood, and explains why I continue to offer in so many morbid affections, my Golden Medical Discovery as being efficacious, ample and adequate to meet the emergencies.

1058. **Treatment.** Hygienic treatment consists in the regulation of the daily habits, right selection and preparation of food, cultivation of cheerfulness, diverting the mind, and keeping the body clean. We cannot give particular directions in relation to the kind of diet, as there are no undeviating rules for hygienic guidance. The directions applicable to the condition of one patient are not suited to those of another. In debility of the stomach, animal food is preferable on one account, because more easily digested. And sometimes alkalies may be given with happy effect, when there seems to be excess of acid.

1059. In some cases, the digestive fluids are weak, the mouth is dry and its alkaline secretions are lacking, and fermentation results, giving rise to flatulence and belching. An antiseptic (¶ 500), which may be prepared by mixing a teaspoonful of muriatic acid with four ounces of water, and of which a teaspoonful may be taken after each meal, will prove beneficial in

checking the fermentation. The addition of one or two drops of a mixture of one part of carbolic acid and six of glycerine, to the above solution of muriatic acid, improves it. When the alkaline secretions of the mouth are deficient, ptyaline has been employed with obvious advantage, preventing the occurrence of fermentation.

1060. Acidity of the stomach and attending irritation may be allayed by the following mixture: calcined magnesia, one drachm, refined sugar, one drachm, subnitrate of bismuth, one-half drachm, oil of cajeput, ten drops. Dose, half a teaspoonful, an hour after a meal.

1061. It is not easy, many times, to prevent the patient from overdistending the stomach, and thus impairing the tone of the muscular coats and hindering the complete reduction of the food to pulp. Close attention and persevering trial, however, is necessary, for in this particular many dyspeptics exhibit monomania. It is no use to employ remedies unless this gross habit be abandoned.

1062. In consequence of debility, overdoing, anxiety, chronic inflammation of the stomach, etc., there is not a due secretion, in quantity or quality, of digestive solvents, and it matters not whether it be a deficiency of salivary fluids, or of the gastric juice, or of both, the result is, indigestion. Remedial treatment then becomes chemical as well as medicinal, and this query is suggested to the physician, viz: what important agent is lacking? Is it *ptyaline*, the digestive principle of the saliva, which separates and dissolves the nutritious portions of vegetable substances, and which is unquestionably one of the essential agents in digestion? If it is, how few are qualified by experience to determine the condition, or have the remedy properly prepared for administration? Is it *pepsin*, one of the agents in gastric juice, which converts albumen, fibrine, caseine, etc., into peptone, that is wanting, or is there a lack of *pancreatine*, a secretion of the pancreas, which prepares oily substances for assimilation, as well as assists in digestion of food? If so, has the physician the remedial agents properly prepared, combined and ready for prescription? The specialist, having more cases of dyspepsia to treat than the general practitioner, is more likely to have the latest and most approved remedies applicable to loss of appetite,

indigestion, impoverished blood, faulty assimilation, and for all diseases arising from imperfect nutrition. In ordinary practice, the physician's time is divided in his consideration of acute, chronic, surgical and obstetrical cases; in fact, much of it is occupied in riding to reach his patients. His attention is continually diverted from one class of cases to another, effectually preventing investigation in any special direction. His patronage does not warrant him in the outlay of time required for the investigation of particular diseases and the expense necessary to obtain the latest and best remedial facilities for their treatment. In the multiplicity of his cares and arduous duties by night and by day, obstinate chronic cases become an annoyance to him, and whenever he can be otherwise professionally employed, he avoids them, disliking to undertake their treatment.

1063. But with plenty of time for scientific investigation, ample facilities to meet the demands upon his skill, and each succeeding case presenting some new phase, the treatment becomes a matter of absorbing interest to the specialist, and each success inspires greater confidence. To illustrate: I not only use in these cases of indigestion, solvent remedies, like pepsin, which act only upon food of a plastic nature, but a variety of other agents of more recent discovery, which possess the power of dissolving all aliment used by mankind.

1064. The chemistry of digestion and of life is becoming better understood. Any of the free acids may serve to dissolve a precipitated phosphate; but it is only the investigating therapist and experienced practitioner who understands which of them is the *most* and which is the *least* efficacious. Alkalies may dissolve a lithic deposit, but who, unless he is an experienced physician, can detect the fault of nutrition that leads to their formation, or rightly interpret the symptoms indicating it? These simple illustrations of the complications that attend dyspepsia are mentioned merely to show that they must be anticipated, foreseen, and embraced within the scope and curative aims of the physician.

1065. For these and many similar reasons, when simple domestic management fails, the author is constrained to frankly advise the employment of those skilled in the treatment of these affections, and familiar with all their symptoms and signs, and

who also have remedies applicable to all the various phases of a disorder so fearfully prevalent.

CASES TREATED.

1066. The number of cases of dyspeptic invalids treated by the Faculty at the World's Dispensary, within the past few years, as may be proved from the records of the institution, is so large as scarcely to be credited by those unacquainted with the prevalence of this disease, without such indisputable evidence. In consequence of these almost innumerable applications, I have taken unusual pains to investigate their causes, and have spared no expense in providing for treatment the latest and most approved digestive solvents and stomachic tonics, which invigorate the mucous membrane of the stomach and materially assist in reducing the food to a liquid condition. Some of these, without being purgative, augment the alvine evacuations and increase the activity of the liver, two very important indications which must be fulfilled incidentally by remedies without causing any real depression, even with feeble and debilitated patients. The recent important discoveries made in obtaining the active principles of our indigenous plants, opened the way to the use of a few of the most important of these remedial agents, hitherto almost wholly unknown to the medical profession, and the encouraging results attending my practice have amply justified and richly repaid me, both for the investigation and originality in my treatment of this chronic malady.

1067. The correct diagnosis by symptoms, and the discrimination as to the actual morbid conditions which perpetuate this functional difficulty, have not unfrequently required a chemical analysis of the patient's urine, unless these could be determined by its microscopical examination; and so various are the morbid conditions thus revealed and recognized, so dissimilar the treatment required, that the general reader can hardly derive much benefit from perusing reports concerning their successful management. For this reason I will not devote these pages to such statements; nor will I publish any of the numerous testimonials which I have in my possession and which have been gratefully and spontaneously offered me as undeniable evidence of my success.

INFLAMMATION OF THE BOWELS. (ENTERITIS.)

1068. When the mucous membrane of the small intestine becomes inflamed, the disease is termed *enteritis*, and it sometimes extends to the large intestine. It is known in two forms, viz: *Acute* and *Chronic*.

1069. *Acute Enteritis* occurs more frequently during the infantile period of life than afterwards.

1070. **The Symptoms** are pain and tenderness of the abdomen, diarrhœa, vomiting and fever. There is dull, aching pain referred to the umbilical region, and the dejections are mucous and gelatinous, or watery and acrid, producing a burning sensation.

1071. **The Causes**, commonly are colds, fatigue, debility drastic purgatives, indigestible food, or any acrid substance. It is most likely to be confounded with inflammation of the peritoneum (the serous membrane which invests the bowels), but may be distinguished from it by diarrhœa and absence of general prostration. It may be distinguished from colic by pressure, which relieves the pain, while in peritonitis it increases it.

1072. *Chronic Enteritis* which is usually the result of the acute form, is more limited in its morbid operation upon the mucous surface of the intestine, frequently affecting the glands and follicles, and hence has been termed glandular or follicular enteritis.

1073. **The Symptoms**, when the disease has been of long duration, are languor and weakness, sallowness and harshness of the skin, coldness of the hands and feet, dryness of the lips and mouth, irritability, headache, weak pulse, impaired appetite, emaciation and night-sweats. There is also great sensitiveness and irritability of the stomach, indicated by nausea and vomiting, for the patient not only ejects whatever food and drink he swallows, but has retchings when the stomach is perfectly empty.

1074. **Causes.** Chronic enteritis is produced by the same agencies as those which excite the acute form of this disease, and frequently is the sequel of such an attack. In a scrofulous diathesis (§ 806), where there is some evidence of eruptive disorder, a suppression of the perspiration and the disappearance

of cutaneous eruptions may be the occasion of derangement of the stomach, resulting in indigestion and irritability, followed by chronic inflammation of the small intestine, fetid discharges, and emaciation. It may be caused by errors in diet, exposure to cold, insufficient protection of the surface from sudden climatic changes, etc.

Prognosis. When this disease attacks adult persons, it is by no means dangerous, unless the patient is weak and scrofulous, in which case it may indicate the existence of tubercular disease. The patient then wastes away, the pulse becomes feeble, and prostration and death follow.

1075. **Treatment.** In the early stages of the acute form, give a mild evacuant, to open the bowels and free them from any offending or irritating substances. My Pleasant Purgative Pellets will most admirably fulfill this indication and also favorably influence the secretory functions of the liver. If these are not at hand, a tea made of two parts senna, one of sage, and three of ginger, may accomplish the purpose. Foment the abdomen (§ 649), and relieve the pain in the bowels by taking my Extract of Smart-Weed. The next step in the treatment is to regulate the diet, and support the patient by mild, and easily-digested food. If the appetite be voracious, restrict the amount of food, and administer warm water-gruel, milk-porridge, and mutton-broth. In the chronic form of the complaint, the alterative action of my Golden Medical Discovery often proves to be the specific needed, when the diet is properly regulated and of a nutritious character. Likewise the application of compresses wet in alcohol will be found to be of essential service. The use of toning and supporting remedies is indicated, and all drastic or depleting treatment is strictly contra-indicated. A syrup made from rhubarb, blackberry briar, and golden seal, equal parts, is excellent to tone and astringe the bowels.

PERITONITIS.

1076. The *peritoneum*, or serous sack which lines the abdominal cavity and invests the intestines, is liable to become inflamed. When this occurs, the affection is termed peritonitis which may be divided into the *acute* and *chronic* forms.

1077. *Acute Peritonitis.* This form may be *partial*; that is,

confined to one spot, or it may extend over the entire surface of the peritoneum, when it is known as *general*.

1078. **Symptoms.** There is headache, quick pulse, tongue coated with white, countenance pallid, features sharp, respiration difficult, nausea and vomiting, severe pain in the abdomen, which is extremely sensitive to pressure and becomes very much distended. There is also pain in the limbs, the bowels are constipated and in exceptional cases diarrhœa is a prominent symptom. The urine is deficient and there is sleeplessness, chilliness and general prostration. Vomiting and spasms of coughing or sneezing produce pain. An erect position occasions intense suffering. The patient is compelled to assume a recumbent posture and is inclined to lie on his back, for in that position he experiences the least pressure of the vital organs against the peritoneum. He has an inclination also to draw up his limbs and retain them in a flexed position.

1079. **Causes.** Prominent among these are injuries which have been inflicted upon the intestines, compression of the colon, or rectum, perforation of the stomach and bowels, either by violence or some pre-existing disease, thus allowing the discharge of blood, urine, bile, or fæces into the abdominal cavity; also abortion, overdoing, exposure to wet, cold, etc. As acute peritonitis is always a grave disease, involving more or less of danger to life, it is the wisest course to employ a physician and trust the case to his management. The same remark is equally applicable to the chronic form of the disease.

1080. **Chronic Peritonitis.** Like the acute, it may be either *partial* or *general*. This form is sometimes, though rarely, the sequence of the acute. When it appears independent of the acute, it is generally associated with some cancerous affection pertaining to the abdominal cavity, and the inflammation is induced by the tumor. If chronic peritonitis be connected with the *tubercular* diathesis, tubercles will be discovered upon the surface of the stomach and alimentary canal, and they will also be found in the lungs, brain, etc.

1081. When the affection is not tubercular, there will appear in the abdominal cavity an effusion of serous fluid of greater or less quantity, mingled with blood and pus. If such a discharge takes place, the abdomen gradually increases in size, or becomes

smaller than is natural. There is pain, attended by soreness upon pressure, and the patient becomes emaciated.

1082. Inflammation of the peritoneum is frequently an accompaniment to *puerperal fever*, which is a disease peculiar to childbirth, and arises from cold, or is communicated from one parturient patient to another by midwives.

1083. **Treatment.** In the remedial management of acute peritonitis, it is obviously necessary to use some agent that can at once influence and change the congested state, and the inflammatory condition of this serous membrane. Whatever will exert a specific effect upon this tissue, to modify and control the morbid initial changes, will also favorably affect the general condition of the system. One of the best agents employed to make a decided impression upon the extremities of the vascular system, subdue inflammation and modify its action, is the fluid extract of the *veratrum viride* (§ 597), administered in full doses, continued and repeated until the system shows very decidedly its effects. Oftentimes it will abort the inflammation within twelve hours, and the patient will rapidly convalesce. Warm fomentations (§ 649) applied to the abdomen are sometimes very serviceable, and are objectionable only because of their liability to dampen the bedclothes. When the abdomen will bear a thick, warm poultice, apply it, and then cover the entire surface with oiled silk.

ACUTE DIARRHŒA. ("SUMMER COMPLAINT.")

1084. A looseness of the bowels, attended with griping pains and sometimes with fever and thirst, is termed diarrhœa. The word means a "flowing through." Basing their distinctions upon the character of the discharges, medical men recognize three varieties of diarrhœa, viz: *bilious*, *mucous* and *serous*.

1085. **Bilious Diarrhœa** is most common, and is recognized by the presence of bile in the evacuations. This gives them a yellowish or green appearance, and affords a ready clue to the cause of the derangement. The secretions from the liver are vitiated, or are excessive in quantity, and in either case they irritate the bowels, and cause effusions from their internal surfaces. The result is, frequent and thin discharges, in which the bile, which has caused the trouble, is carried off with the debris of its own destructive action.

1086. **In Mucous Diarrhœa** the discharges consist of imperfectly digested food, mingled with a semi-transparent, slimy substance, of a ropy, tenacious nature. As the disease progresses this characteristic discharge becomes predominant among the excreted matter.

1087. **Serous Diarrhœa** may be distinguished from either of the foregoing by the extremely thin and watery quality of the passages.

1088. **Symptoms.** These may be very much the same for all the different varieties. There are usually abundant evidences that the digestion is impaired. In the bilious type, nausea and vomiting is not unfrequently a preliminary symptom. There is a gurgling or rumbling in the intestines, with wandering, griping pains. After a passage the patient is easier—may be quite free from distress for a short time—when the pains again return with unabated severity, and are followed by another discharge. The pulse is usually feeble, the surface cool and during the paroxysms of suffering a “cold sweat” may start from the pores of the forehead.

1089. **Causes.** These are numerous. I have already spoken of the manifest origin of bilious diarrhœa. All the causes, however, may be grouped under two general heads, viz: (1), those which act directly on the mucous glands of the intestinal membranes, and (2), those which influence them indirectly, through the medium of the whole system. As examples of the first class I may mention unripe fruits, new cider, all indigestible articles of diet, worms, a sudden change from soft water to hard and *vice versa*, redundancy of acid in the stomach and depraved secretions. Cold affects the whole system and indirectly influences the intestinal canal. It determines the blood to the internal organs, causing an increased secretion of bile and intestinal fluids, so that the mucous membrane becomes irritated. Diarrhœa is sometimes caused by an epidemic condition of the atmosphere. Arising from this cause, it always tends to assume a dysenteric form. A diarrhœal discharge is a frequent accompaniment of febrile diseases, and often occurs as a critical evacuation. When the abdomen is tender, the tongue inflamed at the edges, and the discharges watery, reddish or muddy, it is an unfavorable symptom and indicates a fatal termination.

1090. **Treatment.** The general indications of hygienic management are (1) removal of intestinal irritation, and (2) preventing the determination of an undue amount of blood to the internal organs. If the diarrhœa is caused by the impurity of the drinking water, pure milk may be substituted or else filter the water. If it is caused by indigestion, then the diet should be more liquid and nourishing, and mutton-broth, chicken-broth, oyster soup or beef tea, may be available. If there is irritability of the stomach and vomiting, administer a drink made of scorched corn meal, or what is better, a tea made from the green leaves or bark of the peach tree (§ 599). A mild alkaline drink is also very excellent. Bathe the feet in water as hot as can be borne, and give my Extract of Smart-Weed freely. If it occurs from overloading the stomach, a cathartic is indicated, and my Pleasant Purgative Pellets will be found sufficient. Or a tea made of sage, senna and ginger may relieve the bowels. An extract of syrup of blackberry briar root (§ 516), or of cranesbill (§ 519), or an infusion of them, may be given alternately with my Compound Extract of Smart-Weed, when the latter used alone does not prove sufficiently restraining. Compresses wet in brandy, or what is better, the Compound Extract of Smart-Weed, applied to the bowels, are useful in cases of great local debility. If the stools are fetid, give fresh charcoal and milk; or mix equal parts of brewers' yeast and water, and give freely of the water when the yeast settles; or make a mixture of one part earbolic acid (§ 503), six of glycerine and sixty of water, and give an adult from half to a teaspoonful every hour. When the bowels are irritable, a solution of superfine slippery-elm bark makes a very bland, mucilaginous drink. If the disease is disposed to resist domestic remedies, promptly summon a physician.

1091. In weakness of the stomach and alimentary organs of infants, attended with diarrhœa, drop one or two live charcoals into water, just enough to make it alkaline, and charge it with carbonic acid; heat the water and make a starch with flour, adding milk and a little sugar. Dried or scorched flour makes it more constipating. Of this compound the child may be fed freely. At other times I have used one part cream to two of warm water, and one grain of hyperphosphate or sulphite of soda (§ 474), to a meal. It can be varied by using one part of cream,

one part of milk and one of water. The skin must be kept clean and the bowels stimulated by rubbing them often with my Compound Extract of Smart-Weed. The infant must have good ventilation and may be carried in the open air, being always handled gently and not jolted about, thus giving it the benefit of the sunlight, but it should be kept perfectly warm.

CHRONIC DIARRHŒA.

1092. This obstinate disease is not unfrequently the sequel of the acute form of the same affection. The urgent and severe symptoms of acute diarrhœa are often abated, but the disease is not completely cured. The bowels are left in an irritable condition—perhaps in a state of chronic ulceration, which perpetuates the irregular and morbid discharges.

1093. **Symptoms.** Most noticeable among these is the tendency to frequent and unhealthy discharges from the intestines. The evacuated matter will vary much in appearance and character in different cases. The precise location of the morbid conditions which give rise to the discharges, as well as their extent, will modify the color, consistency, and ingredients of the stools. Most frequently they are dark colored and of very offensive odor. They are of a more liquid character than is natural, except when, as is sometimes the case, periods of constipation alternate with the periods of unnatural looseness. Tormina (gripping) is usually present, but not so severe as in the acute affection. Tenesmus (straining) often accompanies it. The appetite is impaired, there is debility throughout the system, and the patient is nervous and irritable. The complexion becomes sallow, the skin dry and rough, the tongue dark colored, and the patient grows weak and emaciated.

1094. **Causes.** It may be the sequel to neglected or maltreated acute diarrhœa, may arise from the injudicious use of powerful purgative medicines, may result from dissipation, unwholesome food, bad air, absence of light, long continued exposure to dampness or cold, overwork, extreme mental perturbation, and perhaps other causes. Sometimes it is attendant on other diseases, as Bright's disease of the kidneys, scurvy, or some of the various forms of scrofula.

1095. **Diagnosis.** This is more difficult than most readers

may suppose. True, the more prominent symptoms are so apparent and so characteristic that the most unskilled may be able to decide that the patient has chronic diarrhœa. But to determine in what portion of the intestinal canal the disorder is chiefly seated, to decide upon the extent of its ravages, to ascertain what peculiar shade or type the affection has taken on, to investigate its complications and modifications, to ferret out its producing or aggravating causes, and, above all, to nicely and skillfully adjust remedies to meet the depraved conditions, is by no means an easy task, even for the well-read and experienced physician. It should be borne in mind that this is a dangerous malady, and one that should not be trifled with or neglected. Its tendency is to corrode, abrade, and destroy the bowels—a process which, unchecked, must sooner or later result in death. There is little tendency to spontaneous recovery, nor will a removal of the exciting cause often be followed by recovery. The disease becomes so firmly seated, and the powers of life so debilitated, that nature cannot rally from the shock.

1096. **Treatment.** All the suggestions heretofore made with reference to the treatment of acute diarrhœa, are equally applicable to the simple chronic variety. But as chronic diarrhœa is more obstinate than the acute, and more frequently complicated with grave pathological conditions that must be distinguished, and properly met by specific treatment, it requires for its successful diagnosis and management, all the skill possessed by the most experienced specialist.

CASES TREATED.

1097. **Case I.** In July, 1869, a gentleman from the country, aged 35, came to the World's Dispensary for consultation and treatment. He had been suffering from chronic diarrhœa for over five years, and was reduced almost to a skeleton. The disease was contracted while in the army. It commenced in that form known among soldiers as camp diarrhœa. He had dyspepsia, torpid liver, frequent passages from the bowels, which varied in color and were very offensive. There was intestinal irritability and soreness, griping pain, restlessness, thirst, morbid appetite, heavily coated tongue, offensive breath, sallow complexion, cold feet and hands, with frequent attacks of headache. There was

also great irritability of the bladder, frequent desire to urinate, (yet passed but little urine,) pain in the back and loss of sexual power. Before this attack of diarrhœa he had good health; but as the disease wore on him, all those other ailments set in, and the man had become a complete wreck. This being a bad case and of long duration, a critical examination was made, when he was told that it would at best take a long course of treatment to effect his cure; that he would have to strictly comply with very rigid rules governing his diet, pay strict regard to all hygienic instructions given in order to have any prospect of recovery, and even with all this I could not positively assure him that he would regain his health. He decided to take treatment which was very carefully adapted to his weakened system, and modified from time to time to suit his condition and the symptoms as they arose. He continued under treatment but six months when he was discharged perfectly cured, and able to engage in manual labor, which he procured, and he has ever since been diligently following his vocation in this city. This case is mentioned to encourage those similarly afflicted. No one suffering from chronic diarrhœa should be given up as incurable. When the treatment is carefully adjusted to suit the case, such old lingering complaints gradually yield, and health becomes firmly established.

1098. **Case II.** In September, 1873, I received a letter from a gentleman residing in Pennsylvania, who desired my advice in his case. He described it as follows: "I have had a diarrhœa for over six months, and none of our physicians can effect a cure. I have from five to six passages every day, unless I take opium; and when I take this drug there will be more bloating of the bowels, and the diarrhœa is made worse. The passages are of all colors and very offensive. I have a good — yes, I may say *ravenous* appetite. Sometimes the food digests and sometimes it passes through me whole. I have pain in the small of my back, and an irritable bladder; I do not pass enough urine, and what I do void is high colored. My bowels feel sore all the time, and I can't lift anything heavy without pain and an increase of the passages. My skin is dry and my hands and feet are cold most of the time. Now, doctor, what can you do for me?" I promptly replied that he could be greatly benefited and perhaps cured. In a few days I received a request from him to

send medicines and advice. He was sent medicines to last him one month, and at the end of that time he wrote me that he thought he was better, and desired to continue the treatment right along. The second month he was much better, and at the end of the third he was perfectly cured.

1099. **Case III.** In December, 1873, I received a long letter from a gentleman residing in Illinois, describing an ailment he called "looseness of the bowels." He said he had been afflicted with this trouble ever since he came from the army, and that he had not been able to do work, to amount to any thing, for several years. He had been examined and treated by quite a number of eminent physicians, but all had failed in effecting more than a slight relief. After examining his symptoms as written out by him, I did not feel justified in prescribing for him, nor in hazarding an opinion as to his curability, without farther insight into the nature and cause of the frequent discharges. As he spoke of considerable bloating of his feet and ankles, I suspected the diarrhœa might be caused by albuminuria or Bright's disease of the kidneys. He was requested to forward a vial of urine, and upon analysis it was found to contain no albumen, but was heavily loaded with uric acid and very high colored. This became the key to a correct diagnosis, attention being at once directed to his stomach, which failed to digest the food taken, giving rise to irritation of the bowels, emaciation, slight bloating of the feet and ankles, and all the conditions usually attendant upon a long continued drain upon the system. He was advised to regulate his diet carefully, and was given such bitter tonics and food solvents as a large experience in treating derangements of the digestive functions had proved most valuable, and he rapidly and fully recovered his health.

1100. Other cases of chronic diarrhœa, too numerous to mention, have been treated quite as successfully as those here cited. Scarcely any two have been found to demand exactly the same treatment, so various have been the morbid conditions present, as recognized through the attendant symptoms. The larger number have been treated at a distance, without personal consultation, the patients making known their ailments by letter, and advice and medicines being sent them by mail and express.

BLOODY-FLUX. (DYSENTERY.)

1101. The term "dysentery" is used to designate an inflammation of the large intestine, attended with mucous and bloody evacuations. It is called *sporadic* when it is produced from accidental causes, *epidemic* when it generally prevails, and *endemic* when it occurs where persons are crowded together, as in prisons or armies. During the Peninsular war, five thousand soldiers perished from this disease, and in the late rebellion thousands became the victims of its ravages. It is very prevalent in tropical and temperate climates, especially during the autumn months. It comes with varying grades of intensity in the *acute* form, and the *chronic* form is generally the sequel of the acute.

1102. **Symptoms.** This disease is usually preceded by a derangement of the digestive organs, diarrhœa, chills and fever, and a depression of the bodily energies. The surface of the body is hot and dry, while the hands and feet remain cold. The evacuations are frequent, slimy, or jelly-like, mixed with bloody fœcal matter. There is frequent, if not constant desire to evacuate the bowels, and a disposition to strain, called *tenesmus*. The griping or colic pains that precede and provoke this desire to sit and strain, are called *tormina*. If the tormina and tenesmus are prominent symptoms, the attack is correspondingly acute. The tongue may present a natural or frosted white appearance. There is also urgent thirst, and occasionally vomiting. The evacuations vary in color and form; sometimes round, hard lumps pass, which are termed *scybalæ*, at other times, shreds of mucus tinged with blood, or an acrid humor, like the washings of raw meat. These discharges are often *preceded* by cramps in the limbs and thighs, and *succeeded* by an intense burning sensation in the rectum and anus, accompanied by an irresistible inclination to sit and strain, until sometimes, the intestine is forced beyond the anus.

1103. **The Causes** are various, as sudden changes of weather, irregular habits, improper diet, and cold, resulting in *obstructed perspiration*.

1104. **Treatment.** The treatment may be commenced by thoroughly bathing the feet in warm water, or the administration of the spirit vapor-bath (¶ 630) to induce perspiration and

equalize the circulation. Then foment the bowels with cloths wrung out of water as hot as can be borne. The patient should assume the recumbent posture, being well covered to prevent chilliness. If there is an uncontrollable desire to evacuate the bowels, use an injection of cold water or slippery-elm solution, and for an adult take a piece of soft opium as large as a small bean, and introduce it within the anus and allow it to remain. Also take internally a weak solution of alkali every twenty minutes, or a tea of slippery-elm. Many times the medical treatment may advantageously be commenced by giving a cholagogue cathartic (§ 533) to unload the bowels of irritating substances and arouse the biliary and other secretions, after which the discharges are readily controlled. My Pleasant Purgative Pellets will admirably fulfill this indication. Their operations may be followed by full doses of my Compound Extract of Smart-Weed to control the discharges. Gelsemin (§ 598) in doses of one-sixteenth to one-eighth grain, repeated every one or two hours, acts specifically in subduing the inflammation, arresting the bloody discharges and controlling the fever. It will act harmoniously with the means already recommended and may be given alternately with the Extract of Smart-Weed. The gelsemin should be triturated with white sugar, by the apothecary, as directed in § 598. Should the disease not promptly yield to the treatment already advised, it may be considered very malignant in character, demanding the services of the family physician.

COLIC.

1105. Colic is characterized by griping pains in the abdomen, which are sometimes accompanied with nausea and vomiting. It is recognized in several forms, some of which I shall briefly describe.

1106. **Bilious Colic.** This may be the result of a morbid condition of the liver.

1107. **Symptoms.** There is severe pain which occurs in paroxysms, and momentary relief may be obtained by pressure upon the bowels. The pulse is quick, tongue coated, and skin harsh and dry; there is headache, impaired appetite, acrid taste in the mouth, thirst, nausea attended with vomiting and general chilliness followed by febrile symptoms.

1108. **Causes.** It may be induced by exposure to the cold, in consequence of which the circulation is impeded, the pores of the skin are obstructed and all of the vitiated matters have to be expelled through the liver, stomach and intestines. It may also be due to the malaria in the atmosphere, since it most commonly occurs during the autumn, after a season of hot weather.

1109. **Flatulent Colic.** Flatulent or wind colic is one of the results of indigestion.

1110. **Symptoms.** A sense of fullness in the pit of the stomach, attended with pain which is transferred from one part of the bowels to another. There is fever, quick pulse, nausea and the presence of wind; by the latter feature it can readily be detected from the other forms.

1111. **Causes.** Cold or variable atmosphere, partaking of unripe fruits, uncooked vegetables and those articles of diet which ferment instead of digesting.

1112. **Painters' Colic.** This form is also known by various names, as *colica pictorum*, *saturnine* or *lead colic*, all of which have reference to lead poisoning. Those persons who are engaged in the manufacture of lead, and also painters, are the most frequent victims of this affection.

1113. **Symptoms.** Impaired appetite, fetid breath, thickly coated tongue, obstinate constipation, dry skin, scanty urine, languor, severe pain in the umbilical region, and general derangement of the functions of the system.

1114. **Causes.** From the term applied to this form, the cause may be inferred. It is induced by the absorption of lead through the lungs, stomach and skin.

1115. **Treatment.** The indication to be fulfilled in *bilious* colic is to relieve the intestinal spasm. This may be done by drinking freely of a decoction of yam-root (*dioscorea villosa*), (§ 512), which has proved to be a specific remedy in this affection. If this is not at hand, the spasm may be relieved by using opium and assafetida (§ 508); take two grains of each and make into two pills, and give them both at a dose, repeating every two hours, until the pain be allayed. If the stomach is irritable, a tablespoonful of laudanum and one of tincture of lobelia, (§ 573), in an ordinary injection of catnip tea may be useful. If simple

means do not promptly arrest the attack, no time should be lost in summoning the family physician.

1116. In *flatulent* colic, the treatment must depend upon the cause. If it is occasioned by cold, a teaspoonful or two of my Extract of Smart-Weed, in warm water or catnip tea, repeated a few times, will be sufficient. If it results from overloading the stomach, a dose of my Pleasant Purgative Pellets will answer the purpose. If the pain in the abdomen be severe, apply hot fomentations (§ 649). Assist the action of physic by giving an injection of senna and catnip tea, or if the stomach be very sour, take internally some mild alkali (§ 473).

1117. In *painters'* colic, the remedy used to be the "White Liquid Physic," made as follows: sulphate of magnesia (epsom salts), twelve ounces; nitrate of potassa (saltpetre), half an ounce; sulphuric acid, one drachm; boiling water, one quart. Of this remedy give a tablespoonful every thirty minutes or every hour, until the bowels move. An injection of warming teas or of alum water is a good remedy. Castor oil and molasses, containing a teaspoonful of spirits of turpentine, will add to the efficiency of an injection. If the colic be not promptly relieved, it is better to employ a physician.

OBSTRUCTION OF THE INTESTINAL CANAL.

1118. The intestinal canal is liable to be obstructed and the passage of its contents prevented. The phases of obstruction are variously termed *invagination*, *impacted feces*, and *compression or stricture*.

1119. **Invagination or Intussusception** of the intestines, signifies the introduction of one part of the intestine into another. It may occur at any point in the intestines, although it generally takes place near the termination of the ileum (§ 52, Fig. 29).

There are various theories with regard to the process of invagination; one is, that a certain portion or segment of an intestine becomes concentrated, while that adjoining it is dilated, and the one passes readily into the other.

When an intestine passes into one below it, the condition is termed *progressive* invagination; when the process is reversed, it is termed *retrograde* invagination. It generally takes place

from above downward, and the invagination may occur so low that the intestine will protrude from the anus.

1120. **Symptoms.** Persistent constipation, tenderness in the abdominal region, sudden attacks of pain, nausea and vomiting, are prevailing symptoms. In rare instances the matter vomited has the odor of the fæces, showing that the intestinal contents have been ejected by the mouth. This is however of unusual occurrence. The pulse is quick and the extremities are cold. Some who have diagnosed the disease, have discovered a hard tumor on the left side of the abdomen, and hence located it in that place. *Post-mortem* examinations have exhibited great inflammation of the mucous membrane of the intestines, as indicated by their dark red color, and not unfrequently the peritoneal sheath has the appearance of being inflamed.

1121. **Impacted Fæces** are excrementitious substances which become lodged in the intestinal canal, thereby obstructing the passage and preventing free evacuations. These hardened masses may accumulate in any part of the colon or cæcum, but in aged persons they oftenest form below the sigmoid flexure in the rectum (Fig. 29). It is remarkable to what extent the bowels may become impacted: cases are recorded where months have elapsed without the subject having had an evacuation. In other instances it has been ascertained that when injections have been used to obtain a movement of the bowels, the contents below the obstruction only, have been removed, and without affording the desired relief.

1122. **Symptoms.** There is more or less pain, the skin is harsh and dry, the tongue thickly coated, the stomach irritated, there is nausea accompanied by vomiting, symptoms of fever, and a feeling of general debility. If the accumulations be great, the abdomen will become distended, and sometimes these masses can be distinctly felt in the place where they are located.

1123. **Causes.** Obstruction from impacted fæces generally commences by the introduction of some foreign substance within the intestinal canal, and its lodgment there. This substance is often a fish-bone, seeds or stones of fruit, mustard seed, or carbonate of iron improperly administered, all of which have been known to collect and become indurated upon the intestines; or it may be that a gall-stone has been lodged in the passage.

With some one of these materials as a centre, earthy deposits, composed of the indigestible constituents of food, have been made about it, until the intestinal passage has become obstructed, and the feces, thus denied a free exit from the system, have accumulated and hardened. Sedentary habits may also induce an accumulation of excrement within the intestinal walls.

Impacted feces may occasion *tumors* in the mucous coat of the intestines and prevent the passage of its contents; these symptoms should be clearly distinguished. They are located in the colon, and do not often occasion pain upon being pressed with the finger. The removal of a fecal tumor generally obviates the difficulty, and regular evacuations of the bowels are again established.

1124. **Compression, or Stricture.** Obstruction of the intestines may arise from tumors forming externally, or from abnormal growth within the intestinal canal, or from the scarring produced by the removal of ulcers. This is liable to take place in the rectum, in which case it can easily be ascertained by examination. It may be in the colon; if so, it will not be so readily determined, the physician's skill being necessary to ascertain its location. Again, it may occur in the small intestine. If so, the colon will not be distended, and evacuation may take place from below the obstruction. Distention may induce rupture of the intestine.

1125. **Treatment.** If the intestine is invaginated, it will be wrong to attempt to force a passage by the use of purgatives, for they will only increase the difficulty. The indication is to relax the spasm and thus gain a passage, and it is sometimes accomplished by injecting a large quantity of warm water into the bowels. The value of the injection may be enhanced by adding to it thirty drops of the fluid extract of hyoseyamus (¶ 586) and a drachm of tincture of assafetida, (¶ 508). These cases are so important that they ought to be treated by a competent physician, for if the intussusception has become adherent, these remedies will be insufficient.

1126. If the intestine be obstructed by *impacted feces*, the remedy is a free discharge from the bowels. A stimulating purgative injection of senna tea, castor oil and salt will generally remove the accumulations in the colon; then follow with a dose

of four or five of my Pleasant Purgative Pellets. The patient ought to partake of some boiled cracked wheat at each meal, as it is one of the best articles of diet to keep the contents of the bowels in a soluble condition. It may be cooked and served in the same manner as boiled rice.

1127. In the treatment of *stricture of the intestine*, the diet should be nutritious and concentrated, in order that there be little fæcal matter to pass the bowels. If the stricture be in the lower part of the bowels, it may be mechanically distended and overcome. Active purgatives are contra-indicated, but the use of injections is proper. Colic pains may be relieved by anodynes (§ 479). All strictures of the intestines are very serious, and therefore I should advise the employment of a professional attendant.

DISEASES OF THE LIVER.

1128. Although for centuries past the liver has been the subject of extensive research, yet there still exist differences of opinion with regard to the functions which it performs. It is the largest gland (§ 54) in the human body. It is the great depurating (purifying) organ of the system, and has very appropriately been termed the "housekeeper" of health. Formerly it was regarded as an excretory organ, but latterly it has been shown to be an important organ also of secretion, the functions of which are to change the composition of the blood, purify it—by abstracting certain elements—assist in the production of animal heat and favor digestion and nutrition.

1129. The duties of this organ are remarkable in that they are *anticipatory* as well as *successive*. Its functions anticipate the requirement of bile to complete the digestive process. This substance undergoes wonderful transformation in the digestive fluids, loses its identity, re-enters the blood under a new form, assists in nutrition, and is then re-secreted, it having served in company with those carbonaceous elements, from which it is now separated. Thus it assists in various relations, conditions and combinations, and while some of its elements, as cholesterine, sulphur, etc., are eliminated as excrementitious, yet most remain in the system, after being separated from the blood, to perform various vital offices.

1130. After effecting these physiological changes, it would become a poisonous agent, were not its elements deftly abstracted from the blood by the analytic process termed secretion. Any derangement of the secretory function of the liver is liable to result in disease of other important organs, as the heart, lungs, kidneys, skin, stomach, or brain.

1131. There are various opinions with regard to the probable amount of bile daily secreted. From experiments made upon carnivorous animals, Bidder and Schmidt have been led to the conclusion, that in a man weighing one hundred and forty pounds, about two and a half pounds of this fluid are secreted per day. If, in consequence of tight clothing or any mechanical impediment, congestion, functional torpor, chronic disease, slow inflammation, or hardening result, or if, from any cause, the liver be disabled in the performance of its duties, it is obvious that the elements of the bile must remain in the blood, irritating, poisoning, and perverting every vital process.

In this juncture of affairs, what can the organism do? It seems conscious that these elements, in other relations so indispensable to health and life, if not now extricated from the blood will poison it, and through it the entire system. Therefore the skin, lungs, bowels and kidneys, rally to this emergency, and in addition to their own regular duties, make desperate attempts to rid the system of these noxious materials. These contaminating elements, by being removed through the skin, disorder it with pimples, blotches, boils and carbuncles; or cause irritation of the lungs, as indicated by cough, asthma, bronchitis and consumption; or functional disorder of the bowels, as constipation, piles, diarrhœa and dysentery; or, perhaps, organic disease of the kidneys and bladder. Often the brain manifests symptomatic disorders, as dullness, dizziness, headache, impaired memory, gloom and hypochondria. The process of nutrition is perverted, the functions of the blood-vessels disordered, the circulation materially disturbed, and all the functions of the body are morbidly influenced.

1132. These in turn react upon the liver, so that the functions of this organ become still more deeply involved; the portal vessels (§ 54, 67, 98) are congested, inflammation and induration follow, succeeded by other organic diseases. Hardening of the

liver may be the cause of abdominal dropsy, affections of the heart, derangement of the digestive organs, Bright's disease of the kidneys, and even pulmonary consumption.

1133. **Causes.** Among the causes of "liver complaint" we may mention overexertion, unduly heating the body, exposure to currents of air, vicissitudes of climate, as extremes of heat and cold, sudden variations of temperature, insufficient clothing, continued compression of the vital organs, irregular habits, loss of sleep, drinking cold water when the body is heated, too stimulating diet, excessive use of spirituous liquors, sedentary habits, constipation of the bowels, improper medical treatment, the use of harsh, heroic medicines, mercurials, excessive use of purgatives, blows, injuries or contusions in the region of the liver, irritation from biliary concretions, violent rage or deep sorrow, solar heat and malaria. These are prominent agents in producing this disease. Solar heat excites the skin, and malaria the liver, to excessive action. The cold night air checks the functions of the former, on account of which fever follows, succeeded by inflammation of the liver. The sudden changes of the New England climate, the malarial influences of the West and the heat of the South, together with the perverted dietetic habits of our people, tend to develop diseases of the liver throughout the United States.

1134. I have observed in the dissecting room, and also in making *post-mortem* examinations of the bodies of those who have died of various diseases, that in a large proportion of cases the liver has given evidence of having at *some* time been diseased. This affection is equally prevalent in beasts; every butcher knows that the livers of cattle, sheep and swine are ten times as frequently diseased as any other organ.

1135. **Acute Inflammation of the Liver.** (*Acute Hepatitis.*) This disease is of rare occurrence in the temperate zones. The inflammation, being seated in the substance of this organ, terminates either by a gradual return to health (*resolution*), by the formation of matter (*suppuration*), or by chronic inflammation, attended sometimes with enlargement (*hypertrophy*).

1136. **Symptoms.** Chilliness, nausea and vomiting of bilious matters, a sense of oppression and constriction in the

region of the stomach and liver and intense heat of the skin; the tongue is coated yellowish white, the pulse is hard, full and strong, there is severe pain across the temples and forehead attended with dullness and languor, the eye, skin and urine are tinged with yellow, there is difficulty of respiration, dry cough, pain in the right shoulder, collar-bone and in the region of the liver, which may be dull and obtuse, or sharp and lancinating. There is more or less tenderness on pressure over the liver, the patient is inclined to lie on the right side, the appetite is impaired, the thirst great, the bowels are constipated or the opposite condition prevails. The symptoms vary according to the severity of the attack, and the extent of the inflammation, and if the disease does not end in resolution, it generally terminates in suppuration. If the abscess points outwardly, it may be opened by incision and the matter liberated. The pus is sometimes discharged into the bowels and evacuated, or into the lungs and expectorated. Recoveries are rare in the latter case and the disease is always fatal when the matter is discharged into the abdominal cavity and can find no exit.

1137. **Treatment.** The general directions under the head of inflammation (§ 720) will apply to the management of *this* inflammation. If there be nausea and vomiting, a thorough emetic (§ 570) should at once be given. If there be fever, hot skin, quick pulse and thirst, give veratrum (§ 597) and aconite (§ 596) with pleurisy-root tea (§ 550), repeating the doses every hour. To promote sweating, give my Compound Extract of Smart-Weed. Hot fomentations (§ 649) may be applied over the right side to relieve congestion. When the pulse is softened and sweating is induced, give a cathartic, (§ 533), as a dose of four or five of my Pleasant Purgative Pellets. For nausea and irritability of the stomach, make a drink by dropping a few live hardwood coals into a tumbler full of cold water; these will also charge it with carbonic acid, which in these diseases proves very acceptable to the stomach. When convalescence is established, give of my Golden Medical Discovery (§ 620) a teaspoonful dose from three to six times a day, to prevent the disease from assuming a chronic form. If the inflammation does not readily yield to this treatment, a physician should be called, as dangerous complications are liable to arise.

CHRONIC INFLAMMATION OF THE LIVER.

(CHRONIC HEPATITIS.)

1138. This is what is ordinarily called Liver Complaint, Torpid Liver, Bilious Disorder, Disease of the Liver, etc.

Under this head may be considered all those chronic affections, known as congestion, induration and enlargement of the liver and which result in deficient action, functional derangement, morbid secretion of bile, and various disorders of long standing.

1139. **Symptoms.** Owing to the liability of other organs becoming diseased during the progress of chronic affections of the liver, great precision and accuracy of judgment are required to determine by the symptoms, the organ which is *primarily* diseased and those merely *symptomatically* involved. This presupposes, not only familiarity with the signs of a complicated ailment, but also an exact anatomical knowledge of the diseased organ, of the morbid changes which occur in its structure, and their results to its own functions as well as those of other organs.

1140. The symptoms may differ according to the circumstances, aptitude, temperament, sex, age, or constitution of the individual, and the complications of the disease. The local indications are fullness of the right side, thus denoting congestion of the liver; a dull, heavy pain, which is increased by pressure or by lying on the left side; a sense of fullness, weight, and oppression, about the stomach; an aching in the right shoulder-blade; a dull, disagreeable pain in the shoulder-joint, which may extend down the arm, and is sometimes felt in the wrist and knuckle-joints of the hand. Not unfrequently the complexion becomes pale and sallow, and there is puffiness under the eye, headache, a bitter taste in the mouth, tongue coated white or covered with a brown fur, and the gums are very hard; there is frequent sighing, hacking cough, fever, restlessness and loss of sleep; sometimes an unnatural, greasy appearance of the skin, at others, it is dry and harsh, has scaly or branny eruptions, pimples, dark blotches, and troublesome itching. The urine is frequently scanty and high-colored, but variable as to quantity and appearance; it often produces a scalding sensation when voided, and if allowed

to stand, deposits a sediment which sometimes contains albumen. The pulse is slow, *very* slow, particularly when the elements of the bile are not eliminated from the blood. The pulsations of the heart are easily quickened, and palpitation is excited if the blood be low and anæmic. There is depression of spirits and a decided tendency to be discouraged and despondent. The functional powers of the stomach are impaired, there is loss of appetite, or it becomes capricious, uneasiness is felt in the region of the stomach, oppression, sometimes nausea and water-brash, or there is indigestion, flatulency, and acid eructations, the bowels become irregular, usually constipated, and occasionally subject to obstinate diarrhœa attended with colicky pains, the stools are light clay-colored, sometimes hard and dark, again thin and very offensive, and now and then green or black. As the disease progresses, during the day the circulation is sluggish, the feet and hands are cold, but at night the pulse is accelerated, and the palms of the hands and soles of the feet have a burning sensation.

1141. The foregoing symptoms are not all present in one case, nor are any two cases alike in every respect. They vary according to the organs most implicated in the hepatic derangement. Thus, when chronic inflammation of the liver is associated with *heart* disease, the patient may have palpitation, excessive or defective action of the heart, attended with more or less pain and shortness of breath. If the *lungs* be specially influenced, then, in addition to the ordinary hepatic symptoms, there may be a dry cough, asthma, hurried respiration, bronchitis, hoarseness, pain in the chest, etc. If the *stomach* be the sympathizing organ, the tongue will be coated white or brown, there will be nausea, loss of appetite, flatulency, acidity, dyspepsia, fullness and oppression, amounting sometimes to pain in the stomach after taking food, which ferments and gives rise to eructations and various other disordered manifestations. If the *bowels* be morbidly influenced by this affection, there is constipation or diarrhœa, griping pain, distention of the abdomen, piles, and pain just within the points of the hips, thus indicating irritation of the colon. If the *brain* or *nervous system* sensitively responds, it gives rise to headache, dizziness, disturbed sleep, nightmare, depression of spirits, peevishness, capriciousness, lack of ambition, irritability, and congestive symptoms. When the *skin* indicates

its influence, the surface is dry, harsh, and scaly, displaying dark "moth-spots," blotches, or numerous little sores, and the countenance has a dull, tawny look. If the *kidneys* be disturbed by it, there may be pain and a sensation of weight in the back, while the urine is scanty and high-colored, or abundant, pale, and limpid, frequently charged with sedimentary products of disease, and voided with difficulty. If the *womb* be implicated in this chronic affection, the menstrual function may be deranged, and result in an excessive monthly flow, or be scanty, and followed by profuse leucorrhœa.

1142. The preceding allusions to the complications of chronic inflammation of the liver, show the necessity of clearly distinguishing between the symptoms of this disorder and those reflected by the organs which sympathetically respond. To make our discriminations more effectual, and put the diagnosis beyond doubt, we make a chemical examination of the urine, and thereby detect the morbid products which it contains and direct attention to the diseased organs furnishing them. Likewise we examine the urine with one of the latest improved microscopical instruments, and by it discover, with astonishing accuracy, the morbid changes and distinguishing products which constitute the farther evidence of each particular disease. These examinations, in connection with a complete history of each case, a classification of the symptoms, and a knowledge of the individual temperament and diathesis (which can be ascertained by a photograph of the patient), enable us with facility, exactness and nice precision to detect, analyze and perfectly understand disease.

1143. Before entering upon the consideration of treatment, let us casually glance at the functions of the liver. *First*, by an act of transformation, it removes matters which, if allowed to remain in the blood, would become noxious and unfit it for the farther support of the body. *Second*, by secreting bile, it furnishes to the digestive organs a fluid which assists in converting the food into chyle, combines cholesterine with the residual matter, stimulates the intestine to action, and then this fluid is itself transformed and absorbed with the chylous products, after which it circulates with the blood and assists in nutrition until, becoming injurious and pernicious, it is re-secreted and re-elaborated to serve again, as described.

1144. For its growth and nourishment, the liver is furnished with blood by the hepatic artery; but for the purpose of secretion and depuration, it is abundantly supplied with venous blood by the portal system—a union of all the veins—which carries it to that organ from the spleen, stomach, pancreas and intestines. This impure, venous blood, now surcharged with biliary elements, which must be withdrawn from it, is freely poured into the minute network of this glandular organ. In a healthy condition of the liver, the carbonaceous elements of the blood are turned into sugar, and the constituents of the bile are liberated by the liver, and set apart for further duties. When it fails to eliminate these noxious elements from the blood, it is itself thoroughly vitiated by them.

1145. When this organ is congested, embarrassed and poisoned, how ought it to be treated? Shall we administer harsh, irritating and life-endangering remedies, exterminating disease after the manner of *destroying rats*? Or shall we treat the liver kindly, and encourage and sustain its faltering functions? The manner heretofore has been to regard it as a vicious delinquent, worthy of many punishments by drastic purgatives, poisonous mercurials, arsenic, blisters and blood-letting. We are glad for the sake of suffering humanity, that these heroic penalties, supposed by many medical men to be corrective remedies, are becoming obsolete, and belong chiefly to medical history. As people become enlightened they are more humane and sympathetic, and instead of goading an overtaxed organ to perform impossible tasks, they now try to relieve it of congestion and embarrassment, and encourage the skin, bowels and kidneys in their mutual efforts to render assistance to the liver in its emergency. In this manner nature indicates a congenial, restorative plan of remedial treatment. Let us proceed to consider these indications.

1146. **What I know about the Mal-treatment of the Liver.** I may allude to the hurtful and injurious methods of treating this organ without reflecting upon the *motives* of any class of practitioners.

In years past, but within the memory of some of our oldest inhabitants, the qualifications of a first-class school master consisted in muscle, alertness and physical ability. It inspired more confidence and respect among a certain class of boys than any

number of scholarly acquirements. Nowadays *thought* governs. But many physicians have not kept pace with the improvements and continue to administer great, repulsive, sickening doses of medicine. For example, huge, drastic pills, calomel, blue mass, mandrake, podophyllin are given with a view of coercing the liver to action. Milder remedies scarcely excite their respect. The impression seems to prevail with them that disease has set up a rebellion within the territory of the liver, and that a military force of remedies is required to subdue it. Such is the *heroic* course of treatment, based upon a misunderstanding of both the nature of the disease and the action of remedies upon the system. The liver is the scene of fearful collisions and remedial combats. The medicinal soldiery employed oftentimes pillage and lay waste, beyond hope of recuperation, the resources of the blood and life. The polished lancet now lies rusting in its sheath. Calomel and other mercurial Samsons, are now and then exhibited, but, in the main, their "occupation's gone." These agents were once *favorites* with the people and many medical men of a strongly conservartive temperament are loth to give them up, even now that they can be so easily replaced by far more congenial remedies. But knowledge is being diffused, education is lifting the masses, and dear-bought experience is opening the eyes of thousands, who now believe in hygiene and remedial restoration, rather than in the employment of debilitating, exhausting and disease-creating medicines.

1147. **Treatment.** Food must be rich in carbon in order that it may build up the tissues and keep the body warm, but the result of the combustion — carbonic acid — must be removed from the blood, or death will ensue (§ 73). So bile is necessary to digestion, nutrition and life; yet, if it be not separated from the blood by the secreting action of the liver, it will as surely poison the system and destroy life as carbonic acid. Although the constituents of the bile pre-exist in the blood, they must be removed in order that the blood may be rendered more fit to support the body, while the secreted bile is destined to assist in digestion, and the mysterious processes of nutrition. Therefore, we may combine two indications in one, — (a) induce a secretion of bile, (b) restore the normal activity of the liver. This should be done, not by administering stimulants, but by, so far as possible

relieving it of all contingent embarrassments. Would any one think of giving to a weak, debilitated man large portions of brandy to enable him to work? Does not every one know, that when the unnatural stimulus is removed, he fails? Apply this principle in the treatment of the liver. When harsh, unnatural stimulants and "bile-driving" medicines are administered for a time and then withheld, the liver relapses into a more torpid and debilitated condition than before treatment was begun. Is not this true of nine-tenths of all who suffer from this malady, and have recourse to this class of remedies?

1148. Then how may we remedially fulfill the preceding indications? I answer in the language of a distinguished author and standard medical writer, "by using a class of agents which should never be overlooked in the treatment of long-standing liver diseases, chiefly addressed to the blood and denominated '*Alteratives.*'" And why employ this class? Again I reply that the best alteratives are called Catalytics, BECAUSE *they act to counteract a morbid material or process*, and then pass out of the system, without leaving an unfriendly trace or unfavorable token. I use a compound prepared from *tonics and restoratives* combined with *catalytic* remedies. This corrective mixture sustains the action of the liver, and restores the blood by supplying it with a material which is required, but which has been exhausted by disease. This remedy is intended to neutralize the virus of malaria in the blood, specifically counteract the influence of the constituents of the bile, and prepare them for elimination by the bowels, skin or kidneys. Catalytic alteratives frustrate the noxious action of biliary matters in the blood, thwart and defeat many of their ill consequences, and give more time and opportunity for the liver to resume its natural functions. -

1149. *Tonics, restoratives, and alterative catalytics*, are required not only in diseases of the liver, but in a large number of ailments where the blood becomes charged with morbid materials. The active remedial properties of the most efficient agents of the above classes of medicine now known, are scientifically combined in my Golden Medical Discovery, which acts *especially* upon the blood, and hence influences the system generally. It is also powerful in eliminating those morbid humors which are afterwards subjected to excretion through various organs.

1150. Its action is radically different from most medicines employed in chronic diseases, for the reason, that what is usually prescribed is something corrosive, harsh, and powerful, expected to "knock down" an inflammation; and violently and suddenly "drag out" the morbid humors of the system! Unless the disease be temporary, it may return with increased violence, and the patient be again bowed down by its strong hand. The treatment is more vigorously renewed, but the disease is still more resisting, while the failing bodily powers foretell a fatal termination, and the shadow of death already looms up in the distance. Common observation verifies these remarks, and the truth of them is constantly illustrated by the sad experience of thousands of sufferers.

1151. I have been very minute in the description of the remedial properties of the Golden Medical Discovery, and have relied upon the reason and intelligence of my patrons, believing that they can in a degree understand why I deem it so applicable to the system in its remedial operations. It does not debilitate the liver by overstimulation, nor irritate the stomach and bowels by disturbing the delicate processes of digestion, neither does it act with severity upon the blood, but it operates so gently, insensibly, and yet with so much certainty, that it excites the surprise and admiration of the patient.

1152. From the careful detail of its various properties, there is abundant reason for its favorable action upon all of the emunctory organs and processes, which co-operate in the removal of morbid materials from the system. If, however, the bowels are unusually sluggish (chronically constipated), it would be advisable, in conjunction with my Golden Medical Discovery, to use my Pleasant Purgative Pellets, which are powerfully alterative, besides being mild, gentle and unirritating, in their operation. They are the natural allies—remedial assistants—to the Discovery, and the two work harmoniously together. They should be taken in small doses, and their use perseveringly followed, until the bowels are properly regulated by the use of the Discovery.

1153. I know it has been customary to resort to powerful drastic cathartics, followed by bitters prepared in dilute alcohol. This habit is unphilosophical as well as unscientific, for who does not know that alcohol deranges the functions of the digestive

organs and depraves the blood, besides creating an imperiously morbid appetite. It has been repeatedly demonstrated that the use of such bitters has laid the foundation for a drunkard's life, with all the woe and untold misery which attend it.

1154. I cannot but animadvert upon (as I regard it) one of the most outrageous swindles that has lately been imposed upon a credulous and afflicted public. The imposition consists in offering a nasty, muddy, drastic cathartic, a fluid mixture of aloes and *sour beer*, and selling it under the guise of temperance (?) bitters, purported to be made from the harmless roots and herbs of California! It is extensively advertised to cure "all the ills to which flesh is heir." In an almanac designed to advertise this compound, and liberally distributed throughout our land, we read, "The man who commends the use of any preparation containing alcohol, as a medicine, is an incendiary, for all such preparations inflame the blood and rapidly consume the vitality of the system." The *National Advocate* says, "H. H. Vaughn, State Assayer of Rhode Island, submitted to Sheriff Holden a report, showing that 'this compound had 7.30 per cent. of Alcohol!'" Henry Gibbons, M. D., read a paper, before the California State Medical Society, in which he said, alluding to the same preparation, "The truth is that it is rendered more repulsive and obnoxious by concealing its poison behind the mask of temperance. That it contains alcohol there is no doubt. Its harsh and drastic properties have given rise to serious injuries in many instances within the knowledge of myself and others." It really looks like a shrewd artifice—an advertising dodge—to call it a *temperance* remedy, when analysis clearly establishes that it contains over seven per cent. of alcohol! The welfare of society demands that such claims be exposed, for "*The man who commends the use of any preparation containing alcohol as a medicine is an incendiary, for all such preparations consume the vitality of the system.*" Tearing off its temperance mask, we say, let it stand or fall according to its self-pronounced judgment.

1155. Every physician, as well as every intelligent person, is aware that aloes acts as an irritant to the lower bowels and produces piles and other painful diseases; it should never be given unless modified by other medicines, and then only under the direction and observation of a skillful physician. Many constitutions

cannot endure its action, and it invariably produces lasting injury. Then to think of the effect that *sour beer* or *vinegar* produces upon the system ! Every physician knows that it tends to impair the vital processes, breaks down the healthy tissues, reduces the flesh and, if long continued, it will destroy the strength and vigor of the constitution.

1156. I call attention to this fact, because, with the present advance in pharmaceutical knowledge, (the art of preparing medicinal compounds,) it is unnecessary to add alcohol in order to preserve the properties of medicine. With the exception of a few drops of liquor necessary to cut a flavoring oil, not a particle of alcohol enters into the composition of my Golden Medical Discovery or my Favorite Prescription.

1157. Medicines to be strictly remedial, should exert a tonic or restraining influence upon all the vital processes. Those organs which are contiguous to the liver, or connected by sympathy with it, need to be congenially upheld in the performance of their functions. People who are habitually subject to "bilious" attacks are pleased to find that the use of the Discovery and Pellets furnishes immunity from such onsets, and prevents their usual recurrence. Thus these remedies are *preventive* as well as *curative*.

1158. What I have thus far recommended for the treatment of this chronic affection is within the reach of every family. Patients laboring under this disease, when complicated with other affections, require special consideration and treatment, and all such are counseled to employ only those physicians whose experience and success entitle them to confidence. Health is one of the greatest of blessings, and how to restore it when lost, is a question of vital importance. When a decision or choice is made as to who shall undertake the treatment, I next advise the exercise of patience and persevering trial in the use of the remedies employed.

1159. Having enjoyed the confidence of thousands of invalids who have suffered from this chronic *ailment*, and have been restored to health by my treatment, I can present an abundance of testimonials of my success. I prefer, however, to mention only a few of the

CASES TREATED.

1160. **Case I.** H. G. writes, "Since I used your medicines, as you advised three years ago, I have had but one of those

bilious attacks (and that soon after commencing them), which previously occurred at least once a week."

1161. **Case II.** John N., unmarried, aged 27, consulted me by letter, in May, 1871. He was very much emaciated, countenance sallow, skin yellow, dry and harsh, urine high-colored, had palpitation of the heart, poor appetite, headache, dizziness, low spirits, nausea, bowels constipated, hacking cough, great debility,—in short, all of the symptoms indicating disease of the liver.

I commenced his *treatment* by regulating his habits, first in regard to diet, exercise and sleep. I advised a spirit vapor-bath once a week, and an alkaline-bath twice per week. He was given the Purgative Pellets, to gradually open his bowels, and the Golden Medical Discovery, to take according to the directions upon the bottle. Six months afterward, he wrote, "I am a well man; all of my bad symptoms are gone. My skin is now clear; I feel strong and ambitious, and *have gained thirty pounds of flesh.*"

1162. **Case III.** Mrs. Maria M., aged 34, consulted me by letter in 1873. She was very much emaciated and quite feeble, having been an invalid for nearly a year. Her countenance was sallow, bowels constipated, tongue furred, and she had headache, palpitation, and difficulty of breathing; she complained of pain and heat in the loins and back, and of "a dragging down sensation," causing frequent urination which was attended by pain. She had also a leucorrhœal discharge, was often low spirited, sometimes wakeful and sleepless, at other times stupid and drowsy. She complained of uneasiness and wandering pains, and had not only lost her appetite, but suffered from nausea. This case had baffled the skill of several physicians, who regarded the disturbance of the heart, lungs and uterus, as the cause of her ill health. I was soon satisfied, however, that her symptoms indicated chronic inflammation of the liver. Her nervous system was very weak, owing to the fact that the digestive functions were also deeply implicated in the disorder.

Treatment consisted of gentle and regular exercise daily in the open air. I likewise gave advice in relation to her food, and directed her to take the acid-bath (§ 645) occasionally. I recommended the use of the Golden Medical Discovery and Favorite

Prescription, a teaspoonful of each three times a day. I directed her to use Dr. Sage's Catarrh Remedy as a vaginal injection. After four weeks I reduced the medicines, directing the use of the Discovery but twice a day, and the Favorite Prescription only at bed-time. The Catarrh Remedy was continued as before directed. This treatment was persevered in, with slight variations, according as the circumstances required, and finally resulted in her complete restoration to health.

1163. **Case IV.** Peter A., a Southern gentleman, aged 54, and married, consulted me by letter in the summer of 1872, stating that he was suffering from disease that had long resisted the treatment instituted by physicians in the vicinity of his home. The symptoms were somewhat obscure and puzzling, if not calculated to mislead. He experienced frequent attacks of violent headache, was extremely nervous and wakeful, and when this passed off he would be stupid and drowsy. He complained of pain between the shoulders and in the small of the back, experienced giddiness, and roaring in the ears. At other times he was attacked by paroxysms of violent palpitation, exciting apprehensions of disease of the heart. His eyes were sometimes dull, at others bright, bowels irregular, urine scalding. A microscopical examination of the urine revealed the morbid condition of the liver and stomach, which through the medium of the pneumogastric nerve, had excited the violent action of the heart. The nervous system was greatly implicated, symptomatically, in the disorder.

The treatment was commenced with such hygienic advice and regulations as the case demanded. Especial attention was given to the condition of the surface, and to regulating the action of the bowels. Some special medicines, which proved to be most admirably adapted to his condition, were prepared and sent him. In one month after the commencement of the treatment the severity of all his symptoms was greatly ameliorated, and his attacks of headache were less frequent and much milder. He continued to improve, and in another month was quite free from them, and at the end of the third month was entirely cured. After the lapse of nearly two years, he wrote that he had experienced no return of the symptoms of his former complaint, and that the cure was a source of great gratification to himself and a matter of considerable astonishment to his friends.

JAUNDICE. (ICTERUS.)

1164. This affection is generally regarded as a symptom of a disordered liver, since it frequently occurs during the progress of diseases of that organ. When it imparts a greenish tinge to the skin the disease is termed *green jaundice*, and when a black color, it is known as *black jaundice*.

1165. **Causes.** In consequence of the varied conditions from which it arises, Professor Da Costa has aptly remarked: "with the *recognition* of jaundice the difficulty in diagnosis may be said to begin." He considers the causes of jaundice to be (1) diseases of the liver; (2) disease of the bile ducts; (3) diseases remote from the liver, or general diseases leading to a disorder of that *viscus*; (4) certain causes acting upon the blood. Jaundice is undoubtedly due to the presence of biliary elements in the blood.

1166. **Symptoms.** It is usually characterized by a yellowish color of the skin and of the white of the eyes. The skin is usually dry and harsh; if it be moist the linen will be tinged yellow from the perspiration. The tongue is coated yellow, the mouth is dry, the taste acrid, and the appetite impaired; there is headache, nausea and sometimes vomiting; pain in the abdomen after eating, and in the region of the liver, and it is also felt in the right shoulder and between the shoulder-blades. In severe cases there is fever accompanied with chills, despondency and loss of flesh. The stools are of a light clay-color and very offensive; the urine is thick and yellow. When the disease terminates fatally there is delirium followed by stupor.

1167. **Treatment.** The first indication is to eliminate from the system, as speedily as possible, all noxious materials. For this purpose the spirit vapor-bath (§ 630) should be used. If the urine be scanty or voided with difficulty, take acetate of potash (§ 569) or queen of the meadow (§ 559). These may be taken in connection with my Golden Medical Discovery and Purgative Pellets, the efficacy of which has already been shown in the treatment of chronic inflammation of the liver. They are indeed valuable agents in this disease, since they increase the excretory power of all the emunctories and rapidly remove those matters, which if retained would poison the system.

1168. In some cases acids are of great value; good hard cider or muriatic acid (§ 477) and the acid-bath (§ 645) are frequently valuable agents.

In other cases the employment (both externally and internally) of alkalies (§ 473) in addition to the Golden Medical Discovery answers a much better purpose.

Again, there are those, who in addition to alteratives and baths, require tonics. In the treatment of this affection, whatever may be the nature of the case, the use of *alteratives* must not be forgotten, for *without* them the auxiliary treatment,— acids, alkalies and tonics,— will not produce the desired effect.

1169. The employment of drastic remedies is sometimes resorted to; although they may give temporary relief the patient soon relapses into his former condition, while if the treatment above given be observed, the recovery will be permanent.

GALL-STONES. (BILIARY CALCULI.)

1170. These are concretions found in the gall-bladder or bile duct and vary from the size of a pea to that of a hen's egg. There may be no indication of their existence in the gall-bladder until they begin to pass through the duct.

1171. **Causes.** The formation of gall-stones is, undoubtedly, due to an unhealthy condition of the bile. Corpulent persons and those indulging in an over-stimulating diet, or in the habitual use of fermented drinks, are most liable to be troubled by them.

1172. **Symptoms.** The patient is suddenly seized with excruciating pain in the right side. After a time it subsides, but is again renewed with as great severity as before. There is nausea, with vomiting, which is often excessive and severe. The pulse is sometimes slower than is natural, the extremities are cold, there is great exhaustion, together with perspiration and spasmodic contraction of the abdominal muscles. As soon as one stone has passed through the duct into the intestine, immediate relief is experienced until another commences to pass, and the larger the concretion, the greater will be the pain. If the stools be carefully observed and water added to them, the gall-stones may be seen floating on the top of the water.

1173. **Treatment.** This consists chiefly in relieving the

patient of pain and vomiting during the passage of the gall-stones. Hot fomentations made from stramonium leaves (§ 588) and lobelia (§ 573) and applied upon the painful parts are beneficial. Small doses of lobelia may be taken, but not sufficient to produce vomiting. Doses of opium (§ 480) may also be taken; this anodyne must, however, be used with care. Gelsemium (§ 510) is often useful. Chloroform, ether, or the spirit vapor-bath (§ 630) generally allay the pain. Carbonate of soda dissolved in water relieves the vomiting.

1174. These distressing symptoms are apt to recur until the removal of all the gall-stones is effected. To aid in removing them, take my Golden Medical Discovery rather freely for a day or two and continue its use with lobelia, in doses sufficiently large to produce nausea, but not vomiting. From four to eight ounces of sweet oil may be given, and if the bowels do not respond within three hours, repeat the dose, and the gall-stones will be pretty sure to be evacuated. To prevent the formation of these concretions take my Golden Medical Discovery together with alkaline drinks made of carbonate of soda. Health, tone and energy will thereby be imparted to the liver, the free flow of bile will be insured and the subsequent formation of gall-stones prevented.

CHOLERA.

1175. This affection may be classified under the three following divisions, viz: *Epidemic Cholera*, *Cholera Morbus* and *Cholera Infantum*.

1176. **Epidemic Cholera.** This plague is not of recent date. It first made its appearance on our continent in the year 1834. Owing to its great fatality, it is a disease much to be dreaded.

1177. **Symptoms.** These are well defined. It is characterized in its earlier stages by pain in the stomach and bowels,—especially in the umbilical region—nausea, vomiting and diarrhœa; later, the purging is excessive and the matter dejected resembles rice-water and contains white, solid, curd-like substances. So frequent and profuse are the evacuations, that the patient loses strength and sinks rapidly. The secretory organs fail to perform their functions normally, the skin is sometimes

moist, but oftener cold and dry; but little if any bile is found in the excretions and the urine voided is very scanty. There is general nervous derangement, as indicated by the spasmodic contraction or cramping of the muscles. This first attacks the extremities, but soon pervades the entire body and gives rise to excruciating pains. The head is affected by singing, roaring, disagreeable noises in the ears, the pulse is feeble but quick, the nails are of a bluish color, the tongue is coated white, the eyes are sunken and the patient has a ghastly look; the temperature of the body rapidly falls, the surface becomes deathly cold, and unless the disease be promptly arrested in its course, speedy dissolution follows. The disease is rarely prolonged beyond twenty-four hours and sometimes terminates within three or four after its first attack.

1178. **Causes.** There are various opinions with regard to the causes of this disease. Some writers hold to the theory propounded by Dr. Guernsey, who says: "That cholera is induced by a special poison, and that this poison is of foreign extraction, reaching our shores and extending from point to point by means of direct human intercourse, by positive or individual contagion, or sweeping from point to point from some of its great breeding centers, by a kind of wave-like extension." Others have supposed cholera to be caused by *animalculæ* floating in the atmosphere, in certain infected districts, and that these have been introduced into the system. Others have attributed it to the atmosphere being unduly charged with *ozone*. It is evidently due to miasmatic influence, and it is generally admitted that the existing causes are due to atmospheric influences—a warm, damp air corrupted by the gases escaping from decaying vegetable or animal matter. The use of indigestible articles of food may also conduce to the establishment of this disease.

1179. **Treatment.** The kind of medicine required, depends upon the severity of the attack and stage of the disease. In all cholera epidemics, there are premonitory symptoms, such as an uneasy sensation at the pit of the stomach, and a rumbling of the bowels. This is apt to be followed by a painless diarrhœa, which occasions no alarm, and the patient pays but little attention to it. Herein is the great and dangerous mistake. The patient is already in the stage of *invasion*, which must be

promptly arrested, or he will suddenly be precipitated into the stage of *collapse*. What now is the indication of treatment? Let the patient lie down, and have placed about him bottles filled with hot water, with a hot stone or brick at his feet, thereby exciting warmth upon the surface of the body. At the same time administer two teaspoonfuls of my Extract of Smart-Weed. If the symptoms be urgent, repeat the dose every fifteen minutes. Brandy thickened with crushed sugar may also be given. In either the stage of *invasion* or *collapse*, the leading indication is to establish REACTION by promoting perspiration. Bathe the feet in water as hot as can be borne, give the Extract of Smart-Weed freely (the patient lying down and being thoroughly covered), and thus endeavor to excite a profuse, warm perspiration, which will immediately arrest the invading stage of cholera, and save the patient's life. No time should be lost, for delays are dangerous. The work must be done expeditiously, or death will ensue. When reaction is established, the patient should remain quiet and not attempt to use his strength. To get up too soon, invites a return of the disease.

1180. In the stage of collapse, the discharges from the bowels are thin and watery, like rice-water, vomiting sets in, thirst and cramps follow, the skin is blue, the eyes sunken in their sockets, and the pulse is scarcely perceptible. If perspiration can be established, it reverses all of these symptoms. Wrapping the patient in a woolen blanket, and placing fifteen or twenty ears of boiled corn, hot from the kettle, next to the blanket, will steam and sweat him as quickly and thoroughly as any external application can. This measure, used in conjunction with my Extract of Smart-Weed, will often save the patient, even after the stage of collapse has set in. After reaction has taken place, the perspiration should be gently continued for twelve hours, and the patient may take slippery-elm tea, toast-water, and partake sparingly of soft toasted bread and chicken-broth. The food may be fluid and nutritious, but must be taken in small quantities. Do not disturb the bowels with laxatives until the third day after the amendment of the patient, and then it is better to move them by an injection of warm water. Great care must be taken that the patient does not indulge too soon or too freely in the use of food. When a skillful physician can be had,

no time should be lost in securing his valuable services, but since in epidemics of this nature, medical men are generally overworked, and not always easily and promptly to be had, I have been quite explicit in giving full directions for treatment.

1181. **Cholera Morbus** (*Summer Complaint*). This form, also known as *sporadic cholera, bowel complaint, etc.*, usually occurs during the summer months. The attack may be sudden, although it is usually preceded by a sensation of uneasiness and colic pains in the stomach.

1182. **Symptoms.** These are nausea, vomiting and purging. The discharge from the bowels is at first of a thin, yellow appearance, but finally it becomes almost colorless. Sometimes, after the contents proper of the bowels have been evacuated, the dejections have a bilious appearance. Severe cramps and pains are incident to vomiting. The vomiting and purging usually occur in paroxysms, but finally they become less frequent, a reaction takes place, the extremities grow warm and the patient gradually recovers. It may be accompanied by intense thirst and a quick pulse, yet the surface may be cool, with general symptoms of internal fever.

1183. **Causes.** Cholera morbus is more prevalent in warm than in cold climates, and especially in malarial districts. It is generally the result of eating indigestible articles of food, as unripe fruit, uncooked vegetables, etc. Stimulating drinks, or those articles which furnish the elements for fermentation, are also favorable to the production of this disease.

1184. **Treatment.** If the attack be superinduced by eating unripe or stale fruit, it may be proper to give an emetic (§ 570) or a cathartic (§ 533), but ordinarily first give a full dose of my Extract of Smart-Weed (§ 486), and if the ejections be very sour let the patient have a weak alkaline tea, which may be made by dropping a few live, hardwood coals into a tumbler of water. This will not only assist in neutralizing the acidity of the stomach, but help to allay the thirst and accompanying fever. If the patient throws up the first dose of the Extract of Smart-Weed, let another be given. Do not allow the patient to drink cold water, and give only tablespoonful doses of the alkaline solution every thirty minutes. If the thirst be great, occasionally give a tablespoonful of a tea made from scorched Indian

meal, which will not only allay the desire to drink, but also settle the stomach. Or what is better, if at hand, give a tea made by steeping the leaves or bark of the peach tree (§ 599) in water for a few minutes. The patient should be well covered in bed and kept warm and sweating. Hot fomentations applied to the bowels are very valuable. When these attacks are promptly treated as I have suggested, the patient will, generally, quickly and completely recover from them. If, however, they do not yield to these measures, the family physician should assume the responsibility of the treatment.

1185. **Cholera Infantum**, otherwise known as the summer complaint of children, has been by some regarded as belonging exclusively to America. It has been ascertained, however, that this disease prevails in Europe, where it is called by a different name. It usually attacks children under four years of age, and generally between the months of June and October.

1186. **Symptoms.** There is at first diarrhœa and the stools are sometimes of a watery, colorless consistence; at others they have a greenish-yellow appearance; the pulse is quick, the head and abdomen are hot, while the limbs are cold. The child seems to suffer more or less pain, as indicated by its crying, and frequently screams as if suffering acutely. The disease often terminates unfavorably and sometimes within a few hours; again, it continues for several weeks, and the little sufferer becomes very much emaciated, his eyes sunken, countenance pale, and yet a recovery is possible.

1187. **Causes.** From the fact that it oftener occurs during the summer months than at any other time of the year, it may be inferred that the temperature greatly influences the prevalence of this disease. It more frequently attacks the poorer classes, or those living in unhealthy sections, although the children of the wealthy are likewise subject to it. Teething, change of diet at the time of weaning, and unhealthy, diluted milk, may be the exciting causes of this disease so common to children.

1188. Cholera infantum is more prevalent in our large cities, it being comparatively unknown in rural districts. Often these little sufferers are greatly improved by a trip into the country or to the sea-shore. Pure air and fresh sweet milk, as hygienic and dietetic adjuncts, are necessary for recovery.

1189. **Treatment.** The first treatment should be *preventive*. The little patient should be placed in a well ventilated room. Next, attend to the diet, and ascertain if the milk be pure and healthy. If the child nurses, then the mother should properly regard her diet. She should not eat unripe or stale fruits or vegetables, but her food should be nutritious and easily digested. She should not overwork, nor heat her blood, neither should she allow herself to become excited and irritable. She should occasionally give the child some mild alkali to obviate undue acidity of the stomach. Scalding the milk, or using a little lime-water in it, is sometimes beneficial. The following can be obtained at almost any drug store. Syrup of rhubarb two ounces, lime-water four drachms, (about four teaspoonfuls) and water of peppermint two drachms. Give of this mixture, to a child one year old, one teaspoonful every hour until it operates on the bowels as a laxative, which may be known by the changed appearance of the passages. Follow this with small doses of my Compound Extract of Smart-Weed and cover the bowels with cloths wet with the same. This treatment I have employed with perfect success in my own family and also with the same uniformly happy results in the general practice of medicine in which I was engaged for several years before confining my practice exclusively to chronic diseases, as I have done for some years past.

WORMS.

1190. That the human body should form a habitation for these disgusting creatures, is a source of annoyance and humiliation. Their existence is a matter of common observation and experience, but their origin is still obscure, notwithstanding an endless amount of discussion and theorizing. It would not accord with the limits of this work, to discuss the numerous theories which have been offered, to account for the presence of these parasites in the human system. I shall enumerate the principal species, describe the symptoms indicating their presence, and prescribe the proper remedies.

1191. There are five species of intestinal worms, each sufficiently common to merit a separate description.

1192. (1.) A round worm, varying from six inches to a foot in length, and resembling the common earth-worm, is termed by

naturalists, the *ascaris lumbricoides*. It infests the small intestine and seldom migrates into the stomach or large bowel. Instances are recorded, however, in which it has crept upward into the œsophagus, larynx, nostrils and eustachian tube; but their presence in these parts is of rare occurrence, and is generally caused by some local irritation which compels their migration. The fact that they have been found in the peritoneal sac, gave rise to the opinion that they had perforated the intestine; but careful observations have proved that they can only escape through openings made by ulcers.

This species has been found in adults, but is more common in children from three, to ten or twelve years of age. The number of this species existing in a human body is variable. Sometimes only two or three are found. At other times a hundred, and even twice that number, are voided in a few days.

1193. (2.) The *ascaris vermicularis*, thread, pin, or seat-worm, is round, very slender, and about half an inch in length. The habitation of this species is the rectum, and they are often found matted together in the excrement. They are very active, even after ejection, and have been known to cause great local irritation by entering the vagina and urethra. This is an occasional cause of masturbation. It is impossible to estimate the number of these parasites that may exist in the human rectum. Great numbers sometimes are voided at a single evacuation.

1194. (3.) The *tricocephalus dispar* is a third variety of the round worm, and is said to infest the bodies of almost every species of mammalia. As its name indicates, the upper portion of its body is slender, hairlike, and terminates at the lower extremity in a thick spiral portion. It is from one to two inches in length, and is found attached by its head to the mucous membrane of the cæcum (§ 52, Fig. 29), and in rare instances, in the colon and small intestine. They are never numerous.

1195. *Teniae*, or *tape-worms*, are hermaphrodites (§ 271), of a flat, ribbon-like form, and composed of numerous segments, each of which is provided with a complete set of generative organs, and contains ova for the production of thousands of individuals. Some authors have supposed that each segment, or joint, was a distinct individual, but the existence of one head for the whole, precludes this theory. There are two species of

tænie developed in the human intestine, viz: the *tænia solium* and the *tænia lata*.

1196. (4.) The *tænia solium* is the species commonly found in America and all the countries of Europe, except France, Russia, and Switzerland. In France, both species are found, but the *tænia lata* seems to be indigenous to Russia and Switzerland.

1197. The *tænia solium* varies in length from four or five to thirty, thirty-five or even forty feet. The head is hemispherical and armed with a double row of twenty or thirty hooklets. The genital organs are alternate and placed upon the outer edges of each segment. It inhabits the small intestine and is usually solitary.

1198. (5.) The *tænia lata* (broad tape-worm) is distinguished by the greater breadth of its segments, and the location of the genital organs, which are found in the centre of each segment. Its small elongated head is unarmed and has a longitudinal fissure on each side. It usually attains a greater length than the *tænia solium*.

1199. **Symptoms.** The symptoms which the long worms give rise to, are many times somewhat obscure. Thirst, irregular appetite, colic pains, excessive flow of saliva, enlargement of the abdomen, itching of the nose, pallor, offensive breath, disturbed sleep, and grinding of the teeth, are all common symptoms. Occasionally convulsions and other nervous affections are produced by the presence of the *ascaris lumbricoides*, but generally they produce less constitutional disturbance than the other varieties. The passage of *lumbrici* from the bowels and their ejection from the stomach is frequent, and is the only positive evidence of their presence. The *ascaris vermicularis*, thread, pin or seat-worm, gives rise to most of the symptoms produced by the long worms, but in addition produces intense itching at the anus, and not unfrequently there will be seen an eruption upon that part. The itching is particularly distressing at night. When the little sufferer is well covered, the warmth occasioned by the bedclothes causes these little parasites to crawl out upon the anus, and produce such paroxysms of itching and pain as to cause the child to kick the covering off and lie naked, thus getting relief by driving the worms back into the bowels by exposing them to the cold atmosphere. The persistent manifestation of this disposition to

lie naked, should excite the parents' suspicions of seat-worms, and lead them to investigate all the symptoms. By examining the child's stools the worms may be found adhering to the fæces, and they may also be seen on the anus. Thousands of children suffer untold agony from these little seat-worms, which are left unmolested to torment them, because the parents are unfamiliar with the purport of the symptoms manifested, and therefore pay no heed to them. I have been thus particular in describing the symptoms indicating the presence of these pestiferous parasites, in order that they may be readily detected. Parents can apply the remedy, and sparkling eyes, happy faces and joyous spirits will unconsciously express the gratitude of thousands of little ones, not only to them, but to the benefactor who was indirectly instrumental in relieving their sufferings,—grateful incense from the altar of life,—an invaluable benediction, which more than compensates for the weariness and toil incident to the task of writing and publishing this volume. I certainly could desire no higher honor or greater distinction than to be considered the "friend of children."

1200. *The Symptoms* produced by the tape-worm are dizziness, ringing in the ears, increased secretion of saliva, indigestion, ravenous appetite, sharp abdominal pains, and emaciation. The only positive sign of the presence of these parasites is the passage of pieces of them in the fæces. The nervous and other symptoms produced by the ordinary long worms are also common symptoms of the tape-worm.

1201. **Causes.** Careful observations have proved that there are certain causes which favor the generation or development of intestinal worms. Among others, we may mention all fatty or farinaceous articles of food, gormandizing, constant exposure to a moist atmosphere, and sedentary habits.

1202. It is now generally conceded that the development of tape-worms is due to the ingestion (swallowing) of an egg or germ-cell, which is contained in many kinds of animal food, as pork, raw beef, etc., and which the process of cooking has failed to destroy. People living near low marshes, lakes, or the sea-coast, are peculiarly liable to *tæniæ*.

1203. **Treatment.** The expulsion of the *ascaris lumbricoides* may be very easily and pleasantly effected. Santonin

(¶ 488) is a specific remedy for this variety of worms. For a child three years old, take santonin six grains, podophyllin one grain, white sugar thirty grains; mix, triturate, and divide into twelve powders, and give one every three or four hours, until they act upon the bowels. Or, take santonin ten grains, white sugar twenty grains; mix, triturate, and divide into ten powders, and give one every night on the child's retiring, and after giving two or three in this way, administer a mild cathartic. As santonin is almost entirely tasteless, if not combined with other medicines which are unpalatable no difficulty will be experienced in administering it to children. By reference to the article on Anthelmintics in this volume (¶ 487), other valuable vermifuges may be selected, and directions found for their employment.

1204. In the removal of thread or pin-worms, anthelmintic medicines taken into the stomach are of little or no value. An injection of a strong solution of salt is a very efficient remedy. A teaspoonful of turpentine in half a pint of milk makes a good injection. Strong coffee has been recommended as an injection. The anus should be well anointed with lard, oil or fresh butter after each movement of the bowels. Whatever injection or remedy is used, it must be followed by the use of some ointment to the anus, otherwise they will continue to lay their germs about that orifice and multiply there.

1205. Various remedies have been used to destroy *tæniæ*, (tape-worms). Among others I may mention the old and time-honored remedy which consists of two or three ounces of the oil of turpentine, taken in castor oil or some aromatic tincture.

A decoction made by boiling two or three ounces of fresh powdered pomegranate bark in a pint of water was used by the ancients and is now highly recommended as a remedy.

Some American physicians have used an emulsion of pumpkin seeds with marked success.

Twenty or thirty grains of the extract of male fern (¶ 493), followed by a cathartic is highly recommended for the destruction and removal of *tæniæ*.

TRICHINA SPIRALIS.

1206. In 1835, Owen discovered a peculiar parasite which sometimes infests the human muscles, and is termed the *trichina*

spiralis. The presence of these parasites has given rise to morbid conditions of the system attended by the most serious results. They are developed in the alimentary canal and then perforate its tissues and enter the muscles. Twelve trichinæ have been found in a section of human muscle only one-twelfth of an inch square and one-fifth of an inch in thickness. Many instances of death from trichinæ have been reported in New York, Boston, Chicago, Cincinnati, St. Louis, and many minor cities and towns of America.

1207. The early symptoms of trichinæ are very uncertain, being the same as those of other diseases. The patient complains of severe pain in the abdomen and is troubled with diarrhœa. When the trichinæ pass into the muscles they occasion great suffering. There are sharp pains in the muscles, the perspiration is profuse and the patient becomes exhausted.

1208. **Cause.** Nearly every case of trichinæ which has been brought to the notice of the profession was attributed to the eating of raw or improperly cooked pork. The parasites can only be detected by the microscope.

1209. **Treatment.** The impossibility of removing the trichinæ after they have passed into the muscles is obvious; and as yet no special remedy has been recommended to remove them from the alimentary canal. The only safety lies in prevention. Hence all raw or imperfectly cooked pork should be avoided.

CONSTIPATION. (COSTIVENESS.)

1210. Health depends very largely upon the regular activity of the bowels. Each day there should be proper alvine evacuations. There are few persons who have not suffered from constipation of the bowels. Inattention to the calls of nature, or a neglect to regularly attend to this important duty, will, sooner or later, produce disastrous results. Furthermore, it is essential to the comfort of every individual, for when this duty is not performed there is derangement of the mental as well as bodily functions; yet many people unconsciously acquire the habit of neglecting these calls, and obey them only when they are imperative.

1211. Constipation, or *costiveness*, as it is sometimes termed, is a functional disorder of the large intestine. This intestine is

about five feet in length, and consists of the cæcum, colon and rectum (§ 52, Fig. 29). It serves as a temporary reservoir for the excrementitious residue of alimentary matter, otherwise, the act of defecation would necessarily be more frequent. It is distinguished as the *large* intestine, because of its great capacity. In Fig. 29, the numerals 5 and 6, represent the cæcum and the ascending colon. By observing their position we perceive that the contents are propelled, in opposition to gravitation, until they reach 7, which represents the transverse colon. That there is a diminution of muscular power of the large intestine, compared with the increased volume, and also detention of the intestinal contents due to gravity, are sufficient reasons for the slow progress of the fæces, and their great liability to be retained until decomposition takes place.

1212. Habitual constipation produces many disorders, resulting from *sympathy*, *irritation*, or *mechanical obstruction*. By referring again to Figs. 29 and 34, the reader may observe the anatomical relations which the large intestine sustains to the other abdominal organs. The ascending colon arises in the cæcum (Fig. 29), at the lower part of the abdomen, and passes over the kidney on the right side, when it takes a circuitous route around the abdominal cavity, comes in contact with the inferior surface of the liver, proceeds behind and below the large curvature of the stomach, emerges on the left side, and passes downward in front of the left kidney, where it dips into the pelvic cavity, and forms the commencement of the rectum. From being in contact with several important structures, as the kidneys, liver, duodenum, spleen, stomach, pancreas, etc., its irritation may easily be communicated to them, and thus disturb their functions.

1213. If fæcal matters be retained until they are decomposed, great injury follows, since the fluid portions are absorbed, conveyed into the blood, and, of necessity, corrupt it with their impurities. In this way, constipation may be the source of general disorder, but *such* disorder is seldom attributed to the torpid state of this intestine. There is little doubt but that it thereby imposes a great tax upon the functions of the liver, and oftentimes that organ is improperly blamed for the faulty action of the large intestine. It is sometimes the case that the blood

becomes so charged with faecal fluids that their odor can be detected in the breath of the patient.

1214. An overloaded condition of the large intestine may cause inflammation of the liver or dropsy of the abdomen. When the colon is distended, it becomes a mechanical impediment to the free circulation of the blood in other organs, congests the portal system, and disposes to chronic inflammation or cirrhosis of the liver. This latter is a structural affection of that gland, and may, in turn, give rise to peritoneal dropsy. In a word, the accumulation of faeces in the colon irritates both the large and small intestines, thus causing congestion of the bowels, liver, kidneys, or stomach.

1215. The protracted presence of feculent matter deadens the sensibility of the intestine, so that great stimulation is required to provoke it to action. The contents become dry, solid, knotty and hard, very difficult to evacuate. If drastic, irritating physic be taken, only *temporary* relief will be afforded, and it must be repeatedly resorted to, and the doses increased, to obtain the desired effect.

1216. **Symptoms.** One diagnostic symptom of a loaded state of the colon, is an abundant secretion of urine, limpid as water. The direct symptoms relate to the hardness of the faeces and the great difficulty of voiding them. The influence of constipation upon the functions of the liver, is indicated by the sympathy displayed between that organ and the mind. The patient manifests apprehension, depression, gloom, taciturnity and melancholy, all indicative of hypochondriac dejection, induced by constipation.

1217. I have treated patients, who, from this cause, had renounced their bright hopes, yielded their buoyant spirits, and becoming subject to superstitious fears, had given themselves by night and day to devotions, confessions and penance to appease the wrath of a supposed offended deity. True penitential feeling arises from the presentation of truth, conviction is increased thereby, and a sense of moral obligation. This truth is addressed to the understanding and emotive faculties, and is accompanied by spiritual agencies which may influence the determination and after life. It often happens, however, that the victims of these deep dejections and morbid feelings of self-abasement, are persons not only of

good moral character, but of high religious attainments, and their painful exhibitions of fear, distrust and gloom, originate in *physical* rather than in spiritual causes. It is interesting to witness this strange perversion of the imagination, this morbid abasement of the religious faculties, and dejection of mind, due to causes disturbing the functions of the liver and other vital organs.

1218. Young girls, as they approach the puberal age, seem literally possessed with the false idea that the infrequent action of the bowels is a desirable habit. They do not associate with the duty a proper regard for health, but somehow treat it as a "*dernier ressort*,"—a practice inelegant and repugnant. The consequence is, that at this susceptible period, constipation, induced by false notions and neglect, arouses a latent hepatic, or pulmonary disorder, or some other morbid devil that has been lurking about their system, ready to perpetrate a *coup d'état*, whenever favored by such propitious circumstances. This ambush of disease, or predisposition to derangement, might never have been awakened but for neglect.

How many girls illustrate the truth of this statement by their complaints of giddiness, beating and throbbing pain in the forehead and temples, flushing of the face, transient flushes of heat over the whole body, while at the same time the extremities are cold! At other times they may manifest it by their stupor, drowsiness, and dead, heavy sleep; and upon arising in the morning they are still tired and unrefreshed.

1219. The constipated condition of the colon often leads to congestion of the uterus and leucorrhœa, followed by uterine debility, prolapsus, excessive menstruation, obliquities, anteversions or retroversions of that organ. The infrequency of the habit, once mistakenly supposed as desirable by the young Miss, becomes nearly, if not quite disastrous, to all her desires and bright prospects. Complication succeeds derangement, until neither the inexperienced girl nor her solicitous and afflicted parents know where to look for remedial aid, or to whom they may go to unburden their afflictions. If they seek an asylum from these sufferings, they find many private institutions, where flattering inducements are held out of speedy recovery. At such institutions, these uterine disorders are treated merely as local diseases, while the causes, such as we have described, are

overlooked, and consequently, a permanent cure is not effected. Having spent nearly all the money at her command, the patient returns home entirely disheartened. After such failures, many of these unfortunate invalids have applied to me and received treatment, and by persistently following my directions, have in due time been restored to health, amid all the comforts of home and dear friends, who rejoiced with them in the unexpectedly favorable turn of affairs, accomplished at a comparatively trifling expense.

1220. I have seen infants, and also children one and two years of age, in whom constipation was obstinate. It therefore would appear that it may be hereditary. In some persons this affection continues from childhood, with but little variation, until, before reaching their majority, bleeding pile tumors are developed. Habitual constipation of the bowels during a period of twenty years, will generate a class of diseases which are very serious in their results.

1221. **Causes.** I have already alluded to a sense of false delicacy, which prohibits a response to the calls of nature, and I may mention other reasons, equally trifling, which prevent many from meeting her demands. Some are in the habit of temporarily postponing their visits to the water-closet, until, when they do go, they find that their efforts are not seconded by nature. Sometimes the closet is a damp, uncomfortable out-house, situated at a distance from the dwelling, or the access is too public, and hence there is an unwillingness to resort to it at the proper time. Some appear to be too indolent to attend to this duty, or are too deeply interested in the story which they are reading. Others are too ambitious, and cannot take the time, but must finish some self-imposed task, or attend to a pressing engagement, before meeting this physical demand. Thus there is a large class of delinquents who procrastinate this duty, until they are urged by an imperious necessity.

1222. When persons who are very sensitive are visiting or traveling, if they do not perceive the conveniences and suitable opportunities for such a private resort, are deterred by diffidence or a false delicacy, from communicating their wants to others, and obtaining necessary relief.

1223. Inactive life and sedentary occupations are also causes

of constipation. Active exercise promotes all the bodily functions and helps to make the bowels regular. Those who are engaged in literary pursuits, find that mental occupation determines the blood to the brain, thus drawing it from the extremities; the temperature falls below the natural standard, and there is almost invariably congestion of the bowels. The inmates of boarding-schools, also factory-girls, seamstresses, milliners, employees in manufacturing establishments, those who work by the "piece," and all who sit and toil almost unremittingly twelve hours in the day, do not get sufficient exercise of all the muscles of the body, and are often troubled with obstinate constipation.

1224. Our diet, prepared after the modern modes of cookery, is one of the causes which contribute to this ailment. People live too exclusively upon superfine wheat flour. The branny portion of a kernel of wheat consists of various nutritive elements, with more than five times the amount of carbonate of lime contained in superfine flour. Silica, too, is interwoven in its fabric, and so united with its nourishing constituents, that when all are subjected to the action of the intestinal juices they become remarkably bland, soothing and naturally stimulating to the action of the colon, showing that they are well adapted to overcome costiveness. There is very little residue from superfine flour, and it becomes dry, hard and uncongenial to the intestine. Those who daily use boiled cracked wheat find that the bowels are easy when digesting it. There is no dryness or hardness of the fæces and the intestine is evacuated without discomfort.

1225. **Treatment.** Prevention is always better than cure; hence, a few hygienic directions may not be amiss. (1.) Do not disregard the intimations of nature, but promptly attend to her injunctions. Do not neglect evacuation until the blood is infected by the absorption of fæcal fluids, which taint the breath and vitiate the secretions. If there be costiveness, overcome it by establishing the habit of making daily efforts to effect a movement of the bowels, for they are very responsive to the volitions. (2.) Taking regular exercise by walking and lightly percussing or kneading the bowels for five minutes daily, will help to increase the activity of the colon. (3.) The habit of early rising favors the natural action of the bowels. (4.) The

food should be such as will afford a soft, genially stimulating residue, to excite the mucous secretion of the colon and arouse its muscles to action. For this purpose there is no one article that excels coarsely cracked boiled wheat. Graham bread, mush, cakes, gems, and all articles of diet made from unbolted wheat flour, are valuable auxiliaries, and may be prepared to suit the taste. (5.) Have the meals at stated hours; be punctual in attendance, regular in eating and thoroughly masticate your food. Irregularity in the intervals between eating disturbs the functions of the intestine. (6.) The use of ripe fruits, as apples, pears, grapes, figs and prunes, in proper quantities and at meal-time, are sometimes very beneficial. Trivial or unimportant as these hygienic suggestions may appear, yet were they observed, constipation, as well as most of the diseases incident to it, would be obviated. A large proportion of the cases will yield to the foregoing hygienic treatment without the employment of medicines. Should it be necessary, however, to employ an aperient to relieve the constipation, my Golden Medical Discovery will act most congenially, and will be followed by no constipating reaction, which invariably occurs when drastic cathartics are employed. Its operation is mild, bringing about a healthy action by promoting the biliary and other secretions, thus aiding nature in establishing normal functional activity in the bowels. Recourse should be had to it before employing any thing more strongly cathartic. Should it prove, however, too mild in its aperient effects, small doses of my Pleasant Purgative Pellets may be employed daily to assist it. Unlike other cathartics, they produce a secondary tonic effect upon the bowels which renders their influence more lasting than that of other purgatives. I cannot too strongly discourage the injurious custom which many people have of frequently *scouring* out their bowels with strong cathartics. It is a bad practice and cannot fail to do injury. The greatest benefit is derived, not from cathartic doses, but from taking only one or two of the Pellets per day, or just enough to keep the bowels regular, and continuing their use for several weeks, in connection with that of my Discovery, strictly carrying out the hygienic treatment heretofore advised.

1226. The medical treatment of individual cases sometimes

involves many considerations relative to the particular circumstances and complications presented. The peculiar susceptibility of the constitution, as well as the diseases incident to constipation, must be taken into the account. Symptomatic disorder should not be treated as primary, as is frequently done by inexperienced physicians. If the patient be afflicted with uterine diseases, piles, nervous affections, falling of the lower bowel, fistula, or strictures, they should be well considered and treated in connection with this disease. For these reasons I would advise my readers to submit all complicated cases, or those which do not yield to the course heretofore advised, to the remedial guidance of a physician of large experience in the management of chronic diseases, and not assume the great responsibility and the dire consequences which are very liable to arise from the improper treatment of such cases.

PILES. (HEMORRHOIDS.)

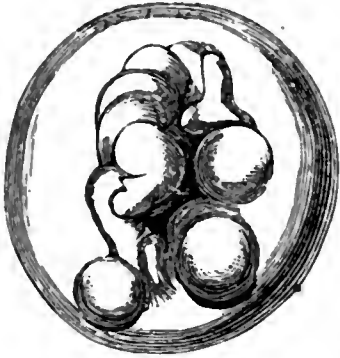
1227. There are few maladies more common than this, and few which are more annoying. Piles consist of tumors formed within the rectum and about the anus, by dilatation of the hemorrhoidal veins and the thickening of their walls. Sometimes, when attended by considerable inflammation, or when the attacks are very frequent, there is thickening of the adjacent cellular and mucous tissues.

It may not here be out of place to remark, that considerable confusion prevails regarding this malady, arising from the mistaken popular notion, that all affections of the rectum and anus are piles; when the facts are, that these parts are liable to a variety of diseases.

1228. Piles, however, are usually divided into two varieties, *internal* and *external*, according to the location; and they are called *bleeding* or *blind*, according to the presence or absence of hemorrhage. In some instances these tumors occur suddenly, but usually they are of slow and irregular growth, advancing and receding from time to time, but with each successive return steadily increasing in size. Both varieties differ very much in size, as well as in the suffering they cause. In some instances, merely slight twinges of pain are felt, while in others, the agony is of the most intense and excruciating character.

1229. **External Piles.** This is the most frequent variety, and, as shown in Fig. 151, is seated at the verge of the

Fig. 151.



External Piles.

anus. They vary in number from one to several, and in size from a pea to a pigeon's egg. They are usually occasioned by the rupture of the hemorrhoidal vein and the extravasation and coagulation of blood into cellular tissue, which at this point is partly covered by skin, and partly by mucous membrane. They are liable to occur at nearly all periods of life, though it is believed by some authors that males are less liable to them than

females, until after puberty, when the reverse is the case.

1230. **Internal Piles** differ from the preceding variety essentially in their structure, being mainly composed of collections of veins and small arteries, which are in an enlarged or dilated condition, and bound together by cellular tissue, which is more or less indurated. The tumors thus formed are covered by the mucous membrane lining the rectum, into which they project,

Fig. 152.



Internal Piles.

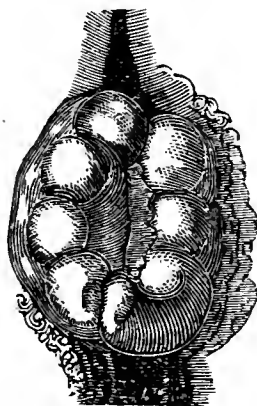
as is shown in Fig. 152. The walls of these tumors are liable to become thin and weak, and on slight causes give way, and then hemorrhage occurs. The location of this variety is within the rectum, at a distance varying from one-fourth to two and one-half inches. Usually more than one is present at a time. The size varies from a pea to a large walnut. They are usually moist, slimy, of a light florid color, from which they vary to a dark blue, purple or livid, owing to the condition of the thin vessels.

During defecation they protrude beyond the anus, dragging the gut down with them, as shown in Fig. 153, and are thus productive of great suffering. They seldom occur until after puberty, when they are of frequent occurrence in both sexes.

1231. **Causes.** Anything that will irritate the lower portion of the large intestine, cause a determination of blood to the

pelvis, prevent the return of blood from the hemorrhoidal veins, or produce congestion or dilatation of them, may induce piles.

Fig. 153.



Internal Piles, protruding.

Whatever occasions one variety, may give rise to the other. It is in accordance with the above principles that the following causes, to wit: habitual constipation, pelvic tumors, excessive sexual indulgence, violent horseback exercise, unnatural development of the hemorrhoidal vessels, sedentary habits, indigestion, pregnancy, straining at stool, habitual use of drastic cathartics, diarrhœa, dysentery, sitting on heated cushions, long-continued standing posture, diseases of the liver, worms, stone in the bladder, stricture in the urethra, enlarged prostate gland, wearing corsets, eating highly

seasoned or indigestible food, using alcoholic stimulants, etc., are capable of producing piles. And some authors believe that in many persons they are hereditary.

1232. **Symptoms.** In both varieties there is apt to be irritation and uneasiness about the rectum and anus, with itching, stinging, lancinating, twinging pain, also pain at stool with a desire to strain, dragging pains in the back, loins, perineum and thighs, headache and giddiness. If from any cause they become inflamed, they give rise to the most intense suffering, and if in defecating they protrude, the attempt to return them occasions the most excruciating agony. In the *external* form, the tumors can be readily felt. In the *internal*, they usually affect the general health, and in addition to the symptoms already enumerated, there is flatulence and indigestion. The tumors are often protruded and painful at stool, and there is a sensation as of a foreign body in the rectum, with warmth and pricking, and frequent attacks of profuse hemorrhage. These symptoms may not all be present in one person, and indeed sometimes are somewhat obscure; when such is the case, an examination by a competent physician will always determine the true character of the complaint at once.

1233. **Treatment.** Notwithstanding the well established fact that piles are readily cured by the appropriate treatment, hundreds of thousands of people suffer untold

tortures from them; and what is worse, they suffer from them because of the popular impression that they cannot be cured. All cases are not, however, amenable to the same form of treatment, for various unhealthy conditions of the system are often concerned in their production and perpetuation, and must of necessity be remedied by appropriate treatment, before a cure of the piles can be expected. It will therefore become apparent that the avoidance of causes is of paramount importance. Some of these causes are external, and wholly under the control of the patient, while others depend upon diseases that are curable; it frequently happens, that while these other diseases are being remedied, the piles disappear without any special attention.

1234. Diseases of the liver may be reckoned among the chief causes of piles, in consequence of the obstruction which they offer to the free return of blood from the hemorrhoidal veins into the general circulation through the *venâ cava* (§ 53, Fig. 32, and § 66, Fig. 41). By this obstruction, distention of the anal extremities of those veins is produced, and if long continued, their walls lose their elasticity, become diseased, and permanent pile tumors result. For the treatment of this complication, the reader is referred to the chapter on diseases of the liver (§ 1128), and particularly to that portion relating to chronic congestion and inflammation.

1235. Diseases of the urinary apparatus, as stricture of the urethra, enlargement of the prostate gland, and stone in the bladder, dysentery, diarrhœa, and constipation,—all cause piles, by the irritation, and determination of blood, which they induce; these difficulties must be removed by appropriate treatment, and the reader is referred to the management recommended under their respective chapters.

1236. Some years since, I ascertained that I was using in my practice remedies which, in addition to their other virtues, possessed a direct curative influence upon the vessels concerned in the formation of piles. These agents enter into the composition of my Golden Medical Discovery, which consequently will be found exceedingly efficacious in the treatment of this disease. This remedy, therefore, in removing the disease upon which the piles depend, and in exciting a direct curative control over the piles themselves, exerts a double influence.

1237. Sometimes, in consequence of structural changes in the rectum, local applications are necessary to aid the constitutional treatment. These applications, however, must be determined by the nature of the case, though usually I have found my Pile Ointment all the local application necessary to effect a cure.

1238. While carrying out the above treatment, it is scarcely necessary to remind the reader that those hygienic directions so essential to health, must not be overlooked. The diet must be non-stimulating, and calculated to aid in overcoming constipation, if it exists; alcoholic stimulants must not be indulged in, and plenty of outdoor exercise, with the frequent use of the bath, must be inculcated.

1239. Occasionally cases are met with, which, from the enormous distention of the blood-vessels concerned, and the disease of their walls, constitutional treatment alone is unable to cure. But, fortunately, such cases are the exception instead of the rule, and even these may be *readily* and *radically* cured by a surgical operation, which consists in removing the tumors. If they are external, they are clipped off with a pair of sharp scissors, and the wounds touched with a styptic application, to prevent hemorrhage. If internal, the tumors are brought down, and either tied tightly at the base, so as to strangulate them, when they are returned inside the anus and allowed to slough off, as they will in a very few days, leaving the bowel smooth and healthy; or, they are tightly clamped with instruments designed for that purpose, removed with the scissors or knife, the wounds touched with nitric acid, to prevent hemorrhage, the clamps being then removed and the bowel returned. Mr. T. Homes, Surgeon and Lecturer on surgery at St. George's Hospital, London, says he has performed the latter operation in upwards of two hundred cases, and can with truth state, that if it be properly done, there is hardly an element of danger in it. Although not having operated in as large a number of cases as Surgeon Homes, yet my operations have been numerous, and have been uniformly followed by the most satisfactory results. I have no hesitation in recommending such an operation in all cases of piles where medical treatment proves unsuccessful; if performed by a skillful surgeon it is but slightly painful, and is generally followed by permanent relief.

CASES TREATED.

1240. **Case I.** J. R. S., aged 35, by occupation a book-keeper, consulted me by letter, in June, 1873, stating that he had suffered severely for several years past from piles, with frequent hemorrhages. He was troubled with dyspepsia, colic, constipation, headache, and with the usual sensations in the rectum which accompany piles. I directed outdoor exercise, and attention to diet. Internally, I gave him my Golden Medical Discovery, with Pile Ointment to be used locally. Also prescribed special medicine for the dyspeptic complication. Under this treatment, he soon recovered his health, and has remained well ever since.

1241. **Case II.** Mr. D., a laborer, aged 50, married, consulted me by letter, in September, 1873. He had for several years been subject to attacks of piles, his bowels were irregular, diarrhoea alternating with constipation. He was in the habit of drinking more or less beer, and occasionally something stronger. He experienced a sense of weight and fullness in the region of his stomach, his tongue was coated and he suffered from dizziness, or, as he termed it, biliousness. He had been in the habit of resorting to the use of some of the popular cathartic medicines of the day, but they only gave him temporary relief. I attributed the piles to two circumstances; the deranged condition of the liver with consequent obstruction to the flow of blood from the hemorrhoidal veins, and to the employment of the cathartics which he used. I gave him directions to stop the use of all stimulants, and not to take any more cathartics, even if he should get bilious; told him to bathe freely, regulate his diet, and take my Golden Medical Discovery four times a day. He followed my directions, and in two months all his troubles had disappeared, and have not since returned.

1242. **Case III.** George M., aged 30, consulted me by letter, in August, 1873, for piles, which frequently bled. He was of an encephalic, sanguine temperament, his general health impaired, had palpitation of the heart, bowels usually regular, had a good deal of headache, was of sedentary habits. Urine sometimes cloudy, and occasioned pain in passing it. Used tobacco and drank beer. His disclosures revealed the fact that

sexual excitement was injuring him. I gave him appropriate advice regarding the latter, told him to stop his beer entirely, moderate the use of tobacco, eat unstimulating food, and apply the warm-bath at night, and the cold hand-bath in the morning, to the lower part of his back, loins, and bowels. He was also given such treatment as the complicated condition demanded, with my Pile Ointment applied to the tumors. He continued under treatment for about three months, when he considered himself well, and stopped medicine; he continues to follow however, my hygienic advice, and not long since wrote, expressing his thanks, and saying that he remained perfectly well.

1243. **Case IV.** J. O., aged 36, married, consulted me personally. His case was a bad one. He had dyspepsia, palpitation, headache, dizziness, tenderness over stomach, and frequent attacks of colic. His general health was very badly deranged, and he was despondent, gloomy and morose. He remained under my care for a month, during which time the most rigid hygiene was enforced, with such medical treatment as the complicated nature of his case called for, and with the most gratifying results. At the end of the month, he left for home, taking with him a quantity of Golden Medical Discovery, which he continued to use, and in three months wrote me that he was enjoying better health than he had in many years before, with not a single symptom of his old complaints, and what is more gratifying, I learned two years later that he still continued well.

1244. **Case V.** Erastus —, aged 35, single, came to the World's Dispensary, in February, 1873. For eight years he had suffered more or less from piles, and for a considerable time they troubled him continually. The hemorrhages were so frequent and copious as to tell fearfully upon his health, and he was pale and haggard. He had been under the care of several medical men, but with no relief. He was despondent, morose, and had thoughts of committing suicide. Taking into consideration the very large size of the tumors, his condition, the continual loss of blood, and the failures of others to cure him, I advised an operation for the *radical* cure of the disease. The operation was performed, appropriate constitutional treatment enjoined, and he remained with me two weeks, when he had so completely recovered as to return home. The operation was permanently successful, for he writes

eight months after, "You would not recognize in me, a hale, hearty and robust man, weighing 165 pounds, the pale, wan, emaciated, despondent creature that came to your hospital in February last. I am a well man, and I can't be thankful enough. I shall recommend many invalids to you."

1245. **Case VI.** Mr. B., a shoemaker, aged 29, consulted me in 1867, and was suffering terribly from internal bleeding piles. He was much emaciated, had poor appetite, and was very nervous and despondent. On examination, the tumors were found to be very large, and at his request, as he was so nervous and the tumors very sensitive, chloroform was administered and an operation promptly performed. Eight very large tumors were removed. The wounds promptly healed, leaving the bowel perfectly healthy, and in two weeks he was laboring at his usual vocation, and continued well when last heard from.

FALLING OF THE LOWER BOWEL. (PROLAPSUS ANI.)

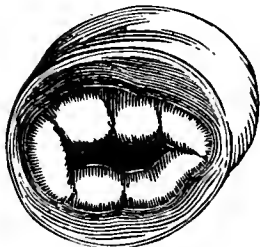
1246. This affection, which is divided into two varieties, *partial* and *complete*, consists of a descent and protrusion of the mucous membrane of the rectum, and in many cases, of the submucous and muscular coats also. This protrusion beyond the margin of the anus, which varies greatly in degree, as may be readily seen by the accompanying illustrations, generally occurs when at stool, and when not severe is usually easily replaced. If for any reason it cannot be returned, violent inflammation, great constitutional disturbance, with sloughing of the protruded bowel occurs, by which means a cure is sometimes brought about, though it occasionally ends in death. It may occur in either sex and at any period of life, but is much more frequently met with in childhood or old age, than in adult life. When the protrusion is not very extensive, it is frequently mistaken for piles.

1247. **Causes.** Various causes are capable of producing prolapse of the bowel, among which are chronic diarrhœa, dysentery, habitual constipation, or constipation alternating with diarrhœa, piles, ulcers, pin-worms, drastic cathartics, falling of the womb, stricture of the urethra, enlargement of the prostate, stone in the bladder, in fact anything that obstructs the passage of the fæces or urine, and thus causes straining in defecation or

urinating. The *predisposing* causes are: a want of tone, feeble contractility, loss of muscular power—*relaxation* of the sphincters of the anus; relaxation of the intestines, or muscular debility, no matter how produced.

1248. **Symptoms.** A dragging sensation in the rectum, extending to the back and loins; a sense of fullness, etc., similar to that experienced in piles, with protrusion of the bowel while

Fig. 154.



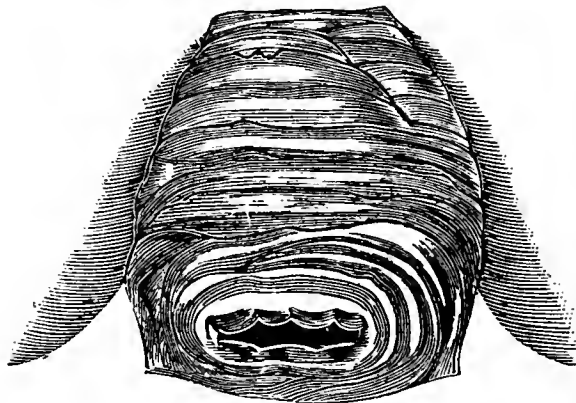
Incomplete prolapse of the Rectum.

at stool. In the *incomplete* variety, illustrated by Fig. 154, the protrusion of the falling bowel usually shows itself in the form of a fold of mucous membrane on either side of the anus, forming a soft, spongy tumor, of a florid color, and devoid of tenderness; there may, however, be several of these folds or tumors presented at the same time; and if they remain long protruded they become congested, assume

a dark red appearance, and are the seat of more or less pain.

In the *complete* variety, illustrated by Fig. 155, the protrusion is greater, sometimes extending several inches beyond the anus, and forming a tumor as large as the fist, or even larger, of a cylindrical shape, truncated, of a florid color, with a wrinkled surface and tender to the touch. It sometimes comes down while passing water, as well as when at stool. By being frequently prolapsed it undergoes changes of structure, becoming congested and inflamed, and finally hardened and thickened. Hemorrhage sometimes occurs.

Fig. 155.



Complete prolapse of the Rectum.

1249. **Treatment.** In treating this affection an avoidance of all exciting causes must be insisted upon, or a cure cannot be expected. The bowels must be regulated, and the general health improved; while every possible precaution must be taken on all occasions, to prevent the parts from protruding, or the

sphincters (muscles surrounding the anus) cannot recover their normal power. The invalid should *never* strain at stool, and indeed he will be more successful in his efforts to avoid the protrusion, if during the act of defecation he assumes some different posture from that usually taken, and the recumbent position is to be preferred. Cold water, injected into the rectum and retained for a minute or two, immediately prior to defecation, is worthy a trial, and after the evacuation the protruded bowel should be carefully sponged with cold water, and before being returned lubricated with some oily substance, as a substitute for the natural mucus which has been removed. Careful attention to the condition of the stomach, liver and bowels is always necessary, as the causes discussed under piles (§ 1231) are sufficient to produce and perpetuate this disease, and for the reasons there given, my Golden Medical Discovery is of the very greatest value, relieving the rectal congestion, and by its specific and tonic effect giving tone to the relaxed sphincters. Its action may be materially aided by the use of some of the vegetable tonics (§ 607) mentioned in this volume. This internal treatment should be aided by the injection of astringent infusions into the rectum twice a day; for this purpose some of the astringents (§ 514) mentioned will be found exceedingly valuable. In addition to this treatment, bathing the lower portion of the bowels, back and loins with cold water, several times a day, will be found a valuable adjunct; when the whole treatment above recommended is carefully carried out, the very best results may be anticipated.

1250. When, however, from any cause, medical treatment fails to cure, in consequence of the structural changes these parts have undergone, surgical means are available, and several operations have been devised to suit the emergencies; when performed by a competent surgeon, they are productive of the most gratifying results. The operations performed at the World's Dispensary, variously modified to suit the nature of the case and combined with strict hygienic and constitutional treatment, have always proved successful.

CASES TREATED.

1251. **Case I.** Wm. P., aged 32, consulted me by letter in 1873, regarding an affection of the anus, which from his

description, I concluded to be prolapsus. The bowel protruded an inch or more at every evacuation, and was usually painful and tender, sometimes bleeding. He stated that his general health was ordinarily good, though he was slightly sallow, bowels somewhat costive, and he was troubled a little with dyspepsia. I directed him to follow the above hygienic rules, take four doses of my Golden Medical Discovery every day, with a single Pellet after dinner, and inject into the rectum twice a day a strong infusion of witch-hazel (§ 518). This treatment he followed some time, and though at first he made but little improvement, yet perseverance rewarded him with a complete cure.

1252. **Case II.** Joseph —, aged 57, a merchant, wrote me early in 1874, that he was suffering from prolapsus of the rectum, which had resisted all forms of treatment for several years; that the protruded bowel was thickened, hardened, and when down, formed a tumor larger than his fist. He also said if I thought best he would come to the World's Dispensary for treatment. I advised him to come, as an operation might be necessary. On his arrival, I found his general health greatly impaired by long suffering. He was thin, pale, dyspeptic and weak. As he was prepared to remain for a time, I at once put him under thorough hygienic and constitutional treatment, to relieve his obstructed circulation and remove the congestion of the lower bowel. In three weeks he had made decided improvement, and I performed the necessary surgical operation for a radical cure. The constitutional treatment was kept up until his general health was fully restored, and in two months from the time he arrived, he returned home perfectly well, a wonder to all who knew him.

ANAL FISTULA. (FISTULA IN ANO.)

1253. This form of rectal disease is of frequent occurrence, being met with among all classes, and at all periods of existence, though most prevalent in adult life. It is most common among males, though not confined to this sex. It consists of an abnormal or artificial passage from the rectum to the surface of the skin, the walls of which are thickened and indurated, and give rise to an offensive discharge. The direction of this unnatural passage varies greatly, as well as its points of communication

with the rectum, or skin. The rectal apperture, however, is seldom more than an inch and a half from the verge of the anus, oftener much less, while the external outlet varies from a fraction of an inch to several inches, and in one recorded instance, the fistula made its exit near the knee. There are sometimes several orifices communicating with the rectum or skin. In some instances the external opening is so minute as to be scarcely perceptible, except by the moisture of the part in the vicinity of the opening. Surgeons usually divide this disease into two varieties, the *complete*, and *incomplete*, or "blind." In the complete form, the fistula communicates with both the rectum and the external surface of the body. In the *incomplete*, which is divided into "internal" and "external" blind fistula, the passage has but one opening; the "internal" having an opening into the rectum, but not through the skin; and the "external" having an opening through the skin, but not into the rectum. This affection is frequently associated with a broken-down condition of the system, and occasions intense annoyance to the patient.

1254. **Causes.** Constitutional predisposition, constipation, piles, or the presence of foreign bodies in the rectum, causing an abscess or ulcer. Some authors have contended that fistula always originates from an ulcer in the rectum, which gradually makes its way through cellular tissue to the surface. Others contend that the cause of this disease consists in an abscess, which burrows in the tissues and makes its exit into the rectum, or through the skin, or both. No doubt both of these views are correct, and it can readily be seen that when an internal opening is once established, the fæces which enter into it must sooner or later work their way to the surface, burrowing through those parts that offer the least resistance, until a place of exit is reached.

1255. **Diagnosis.** This is often a matter of considerable interest, and it requires not a little skill, to conduct the manipulations necessary to the satisfaction of both the patient and physician. The disease may be suspected, if there has been an abscess in the parts involved, or if the patient has been subject to pain in the rectum, and the parts are tender, tumid, or indurated. When the fistula opens externally, the linen will be moistened and soiled with pus, or a bloody fluid, and when the tract is

large, the fæces may pass through it. A careful exploration with a probe, passed into the external opening while the finger is in the rectum, generally reveals the direction of the tract; but, sometimes, in consequence of the tortuous course of the canal, the probe cannot be made to follow it. When the fistula is incomplete, and opens internally, the probe is passed into the rectum and directed outwards through the orifice, when it may be felt externally. In such cases a tumor caused by the contents of the fistula, may generally be seen presenting near the anus, and the pain will be considerably increased during defecation, by the fæces passing into it and disturbing its walls. The examination should be made with the greatest possible care, for it is attended with more or less pain.

1256. **Treatment.** When constitutional derangement exists, it must be rectified, or any treatment will be liable to result in failure. The comfort of the patient may be greatly promoted by attention to the bowels, keeping their contents in a soluble condition, and the liver active, so as to prevent congestion of the rectum and adjacent structures. This can best be done by careful attention to hygiene, and the internal employment of my Golden Medical Discovery and Pellets, in sufficient quantities to produce the above-named effects.

A *radical cure*, however, cannot be accomplished except by surgical means, for which we have the *knife, ligature, caustic, stimulating injections, etc.*, which may be varied to suit the emergency, and should never be employed, except by a competent surgeon. Constitutional conditions will materially influence the cure, no matter what procedure is adopted; the greater the constitutional derangement and the poorer the general health, the longer will the cure be delayed. If there is any constitutional derangement whatever, it is a good plan to put the patient under appropriate medical treatment, according to the nature of the case, for a month or two before the radical cure is undertaken. The great secret of my success in treating this disease depends upon carrying out this plan.

1257. The use of the knife is becoming obsolete, and has to a great extent given way to other measures which are equally successful. Indeed, other means will succeed in cases where the knife fails or is for any reason inapplicable. One great

objection to the knife is, not only the dread which patients entertain of it, but the great liability of its use resulting in paralysis of the sphincters of the anus, in consequence of which the patient loses control over the bowels; and another is that it sometimes fails entirely to result in cure. By the means which I employ these objections are entirely overcome, and while the general system is being renovated, the fistula is healed without any trouble following it. The existence of fistula is much more frequent than has been generally supposed, and is quite apt to be associated with pulmonary diseases. Heretofore it has been supposed that to heal the fistula during the progress of the other affection would result in fatal consequences, and the patient has been left to suffer and die, under the combined influence of the two diseases. Observation, based upon an extensive experience in the management of such diseases, has proven that argument fallacious in every respect, and I would urge all persons afflicted with fistula to have it cured, no matter what complications there may be. The fact underlying this fallacious theory is, that when grave constitutional troubles have co-existed, the use of the knife has resulted in failure, and the fistula has refused to heal.

1258. The constitutional treatment for the purpose of building up the system and freeing it of impurities, may readily be carried out at the patient's home by the means already recommended; and in the majority of cases, should be done before the local treatment is commenced. The cure of the fistula itself, however, can only be successfully performed under the management of a judicious surgeon, and the difficulty in the way of cure is usually reserved for the specialist to overcome; the length of time required must necessarily depend upon the condition of the general health, the nature of existing complications and the character and extent of the fistula itself.

1259. Having had ample facilities for observing the relative merits of the various methods of treating this complaint, in hundreds of cases, in my own practice and that of others, I feel justified in saying that the general plan which I have adopted has been attended with the most perfect success. The local treatment which I employ depends upon the nature of the fistula; in some instances the ligature is best, in others caustics

and again injections, etc., while others require a combination of two or more, or a modification of them.

CASES TREATED.

1260. **Case I.** William C., aged 22, single, consulted me in 1870, for an affection of the rectum. Examination revealed the presence of a double fistula, also that he was laboring under constitutional syphilis. His general health was very poor at the time. I at once placed him under medical treatment to build up the system and purify it, and adopted such palliative means as would give him relief until such time as the surgical treatment could be safely undertaken. This was continued for some three months, when he had so much improved that the cure of the fistula by a combination of ligature and caustic was begun. In one month from this time he returned to his home, in Indiana, perfectly well. He continued the constitutional treatment for some time on account of his original difficulty. The result was a cure of both affections, and when last heard from he had experienced no return of the trouble.

1261. **Case II.** Henry R., aged 35, consulted me in 1871, for "fistula in ano." He had suffered very much for several years, and his general health was greatly impaired. Several surgeons had refused to operate on him, in consequence of a hemorrhagic diathesis under which he labored. So great was this condition, that the extraction of a tooth nearly resulted in loss of life from hemorrhage, and the slightest scratch or cut generally gave rise to profuse bleeding. The surgeons whom he had consulted considered that he would bleed to death if an operation was performed. Under these circumstances he consulted me, and I determined to cure him, though telling him that his cure would take time. I at once put him on treatment to overcome his constitutional dyscrasia, and in three months began the use of the ligature in a peculiar manner. In six months from the commencement of treatment he returned home greatly improved in health; indeed he said he was well. The fistula healed perfectly, and during the whole time he had not lost a single tablespoonful of blood.

1262. **Case III.** Edson E., aged 40, consulted me in 1872, for the relief of fistula, complicated with what his physician

called consumption, but which proved to be chronic bronchitis. I at once began such hygienic and constitutional management as his case demanded, and treated the fistula to injections of a stimulant and alterative character; in four months he was entirely relieved of the bronchitis and fistula, though I advised him to continue the hygienic treatment, with the Discovery, for some time longer.

1263. **Case IV.** Lewis P., aged 44, consulted me in 1873, for a fistula, which had been caused by an abscess produced by a local injury. His constitutional condition was good. I prescribed such dietetic and hygienic treatment, with small doses of Discovery, as was necessary to regulate the bowels and favor the healing process. I employed the ligature, and in twenty days he left for home, the fistula having been perfectly cured.

FISSURE OF THE ANUS. (RHAGADES ANI.)

1264. This, as its name implies, is an ulcer or fissure, or in other words, a "crack" of the mucous membrane of the rectum, and, though apparently insignificant in itself, is productive of the most intense suffering, and is extremely difficult to heal. It is seated just above the verge of the anus, and extends upward through the mucous membrane, in the shape of a gutter or groove, from half to one inch, and sometimes even farther. It is generally very irritable and sensitive to the touch, though its edges often become thickened, hardened and turned outwards. Sometimes it is so small as to be scarcely observable, though generally it is larger, and discharges a thin, mattery, bloody fluid. Frequently it is associated with a depraved or enfeebled condition of the general health, and by the patient is often mistaken for piles.

1265. **Causes.** It often comes on without any assignable cause, but in a majority of cases, it is probably due to such modifications of the constitutional integrity as produce ulcerations elsewhere, as venereal, scorbutic or tubercular affections. It may, however, be caused by disorders of the stomach or bowels, piles, straining, laceration of the rectum, or by the passage of hardened faeces.

1266. **Symptoms.** The characteristic symptom of this affection is the horrible pain which the patient suffers, especially

after defecation, and which is generally attended with spasmodic contraction of the sphincters of the anus, violent bearing down and straining, and soreness in the perineum and thighs. This is always aggravated by horseback exercise, walking, sexual intercourse and sitting on a hard seat. As the affection progresses, the bladder becomes irritable, intolerant of its contents, and there is a frequent desire to urinate, with pain and bearing down, weight and a dragging sensation in the perineum, the general health fails, the countenance becomes sallow and haggard, the appetite and strength decrease, and every thing denotes terrible suffering. The cause of these symptoms is easily determined by an ocular examination, during which the patient is directed to force the parts down as far as possible, when the lower margin of the fissure is brought into view.

1267. **Treatment.** Various methods of treatment have been devised for the cure of this affection. It is very rarely, if ever, cured by constitutional treatment alone, though any constitutional derangement must be rectified, by such means as the nature of the complication demands. The contents of the bowels should be kept in a soluble condition, and the general health improved by every possible means. For these purposes, I would advise the use of my Golden Medical Discovery and Pellets, in appropriate doses, together with thorough hygiene and absolute cleanliness. The comfort of the patient will be promoted, and the cure hastened, by sponging the anus thoroughly clean with warm water, after each evacuation of the bowels, and before making any local application.

The local treatment consists in the employment of such measures as properly come within the domain of surgery, and formerly consisted in the division of the sphincters of the anus and paring the edges of the fissure. Such a proceeding is at present seldom resorted to. The use of the knife is rarely necessary, and is gradually giving way to other means. The application of caustics is supplanting more extreme measures, and with equally good, if not better success. Their employment should always be made under the direction of a judicious and skillful physician, or a return of the difficulty will be apt to occur. The fact that it arises from constitutional causes in nearly every instance, should not be overlooked in the attempt to cure it, but

should always be met by such treatment as is laid down under the diseases which complicate it.

1268. The application of caustics, even, is unnecessary and unjustifiable in many cases; the use of healing preparations of a stimulating character, after the cause is obviated, is often sufficient to effect a cure. The spasmodic contraction of the sphincters, and irritable condition of the bladder, must be overcome, or all treatment will prove futile. For this purpose agents that act specifically on those parts are required. In the absence of such agents, the judicious employment of anodynes locally, is advisable, and often productive of gratifying results. When these milder measures fail in effecting a cure, then, and not till then, should the application of caustics, or a surgical operation, be resorted to.

CONGESTION OF THE BRAIN.

1269. The great functional activity of the brain is indicated by the large proportion of the blood required for its healthful exercise. *An unnatural determination* of blood to that organ results in a morbid condition, termed *active congestion of the brain*.

1270. **Causes.** This disease is caused by protracted mental exertion, intense emotion, sunstroke, etc., and may terminate in apoplexy or coma. In the delirium caused by the excessive use of alcoholic stimulants, active congestion is a prominent pathological condition.

1271. **Symptoms.** Active congestion of the brain is indicated by intense pain and fullness in the head. The eyes are suffused and extremely sensitive to light. The head is very hot, the face flushed, the mind confused and the pulsations of the carotid and temporal arteries are slow and strong. The violence of the symptoms will depend upon the degree of congestion.

1272. **Treatment.** Moderate congestion of the brain is not dangerous and may be removed by administering an active purgative. Severe active congestion is liable to produce apoplexy and sudden death. The application of ice to the head, a hot foot-bath and a thorough purgative are often the only remedial measures required, but in extreme cases the free use of

veratrum must be resorted to and will generally afford speedy relief.

1273. **Passive congestion** of the brain is a pathological element entering into various affections, but cannot be considered as a distinct disease.

1274. **The Symptoms** are drowsiness, mental inactivity, and in children, convulsions.

1275. **Causes.** Any mechanical impediment which prevents the return of the blood from the brain will induce passive congestion. It also occurs in certain diseases of the heart where there is diminished arterial circulation.

1276. **Treatment.** If the morbid condition is produced by any mechanical obstruction, as tumor of the neck or cardiac lesion, it can only be remedied by the removal of the impediment. If caused by a weak circulation, stimulating tonics and nutritious diet are the proper remedies.

INFLAMMATION OF THE BRAIN AND ITS MEMBRANES.

1277. The membranes (§ 115), as well as the substance of the brain, are liable to chronic and acute inflammation and may be partially or generally involved. When the membranes are the seat of inflammation, it is called *Meningitis*. Usually when the brain proper is the seat it also involves more or less the *arachnoid*, (spider's web) the *dura mater* (hard mother) and *pia mater* (soft mother) membranes, in the inflammation. It is unnecessary here to award a separate consideration to each membrane, as though its inflammation were a distinct affection.

1278. **Symptoms.** The symptoms are pain in the head, restlessness, despondency and sometimes delirium. Sooner or later the patient experiences a chill, is dizzy, the eyes look red, become sensitive to light, the hearing is acute, the face is flushed and there is wakefulness and also confusion of ideas. The pulsations of the arteries leading from the neck to the head can be distinctly seen, the pulse is quick, the skin hot and there is intense thirst. Children turn their heads from side to side, moan, sometimes scream in their sleep as if frightened, and the thumb is drawn down into the palm of the hand when attacked by convulsions. If the disease be not arrested, whether the patient is

young or old, he gradually sinks into a deep stupor and it is with difficulty that he can be aroused. The sensibilities to light and sound are blunted, the pulse becomes slow, the skin cold and moist and the vital powers gradually succumb to the disease.

1279. **Causes.** The causes producing inflammation of the brain and its membranes are various. Injuries from blows, contusions, falls, sudden colds, or excess of mental labor. Some persons are very excitable, highly emotional, or otherwise are predisposed to insanity. It may be produced by intemperance, loss of sleep, irregular habits, excessive sexual indulgence or masturbation. It occasionally results from translation of acute or chronic affections of the skin to the brain.

1280. **Treatment.** The treatment must be modified according to the condition of the patient. I would not advise my non-professional readers to attempt the treatment of these formidable and dangerous diseases, but would suggest the employment of a competent physician.

SPOTTED FEVER. (CEREBRO-SPINAL MENINGITIS.)

1281. There are two forms of this disease. One is characterized by all the symptoms of inflammation—ringing in the ears, pain in the head and back, restlessness and delirium, but sensation and motion are not impaired. In the second form, the nerves of sensation and motion are paralyzed and consciousness is lost. This disease sometimes prevails as an epidemic in some localities, and is most apt to attack young persons.

1282. **Symptoms.** The attack is usually sudden, like the taking of a severe cold, and is accompanied by pain in the head, fever, acceleration of the pulse, which becomes rapid and full. Purple spots often appear on the surface, there is thirst, the muscles become rigid, the head is drawn backward and the pain in it becomes very violent. The patient grows stupid and deaf, is not easily aroused, and unless the disease is arrested by medical treatment, coma and death supervene. The patient at the commencement of the attack sometimes complains of feeling sore all over, he cannot bear the slightest touch and dislikes to change his position in bed.

1283. **Cause.** It is not well understood what it is that predisposes the brain and spinal marrow to this inflammation.

Many attribute it, however, to malaria. The exciting causes are sudden variations of the temperature, taking cold, repression of the secretions, etc.

1284. **Treatment.** The indication of treatment is to bring the blood to the surface and induce free and copious perspiration. I would recommend wrapping around the patient's naked body a woolen blanket, wrung out of hot water, and placing outside of the blanket ears of corn taken out of boiling water. Then cover with comfortables, so as to retain the heat and steam, and thus sweat the patient profusely.

Some physicians commence the treatment by administering an active and thorough cathartic, and then bathe the patient in hot lye, medicated with salt, pepper and mustard. This treatment should be followed by rubbing the surface with tincture of pepper or other stimulating rubefacients.

1285. As soon as the patient is steamed by the corn, give him full doses of my Extract of Smart-Weed to keep up the perspiration. If the pulse is yet active, give from one to three drops of fluid extract of veratrum (§ 597) every hour, until it is sufficiently reduced. If the pain in the head be severe, dry cupping over the neck and spine may relieve it. If there is retention of urine, constipation, involuntary stools, convulsions or palsy, the attack is very severe and very liable to prove fatal. A disease of so dangerous a character should be treated by the family physician.

APOPLEXY.

1286. Apoplexy may be defined as a sudden cessation of all the vital functions, except those of the lungs and heart. It is caused by a sudden effusion of *blood* or *serum* upon the brain. In the former case, the shock is due to a sudden rupture of one or more of the cerebral arteries, the membranes of which have become tender or brittle by age or calcareous deposits. This form of apoplexy has also received the name of *cerebral hemorrhage*. Serous apoplexy is due to a collection or effusion of the serum beneath the arachnoid membrane.

There are three modifications of this disease, as regards its severity, each characterized by peculiar symptoms. The first form which I shall mention is always attended with fatal results.

Complete coma usually supervenes in a few moments after the attack; it is seldom preceded by incipient symptoms, but its victims are stricken down without a warning.

1287. The second form which I shall notice, frequently results in *partial* recovery. A portion of the body is paralyzed, and the intellectual powers seriously impaired.

The third modification consists of those sudden and transient attacks of apoplexy which are produced by an undue determination of blood to the brain, or a retention of venous blood in that organ. The attack is usually of short duration, but sudden death may ensue.

1288. **Symptoms.** In the first form of apoplexy which we have considered, the prominent symptoms are sudden and violent pain in the head, faintness, nausea and sometimes vomiting. The face becomes ghastly pale, and the pulse is weak and irregular, but these symptoms gradually subside. The pulse becomes stronger, the mind clear, and the patient appears to be recovering. Presently, his face becomes flushed, even livid, he rapidly sinks into a profound stupor or coma, and death quickly supervenes.

The second form is characterized by a sudden paralysis of some portion of the body—usually one side—when it is termed *hemiplegia*. The attack is accompanied by a total or partial loss of consciousness. The power of sensation, and in some instances of motion, is gradually regained, and many months, or even years may intervene before the final shock which produces the apoplectic coma. In this form the quantity of effused blood upon the brain is very small.

The third variety is a sequence of cerebral congestion, and is attended by a cold, clammy sweat and sudden coma.

The premonitory symptoms of apoplexy are loss of memory, frequent headache, drowsiness, and ringing in the ears.

1289. **Causes.** These are various. (1st.) There may exist a constitutional predisposition to apoplexy. I do not mean a peculiar conformation of body, but refer to its hereditary transmittance. (2d.) Age also predisposes the system to this disease. All the membranes become less elastic and hence more liable to rupture. (3d.) Excessive mental exertion, gormandizing, drunkenness and debauchery, are all prominent causes of apoplexy.

1290. **Treatment.** Formerly blood-letting was always

resorted to in apoplexy but modern research and observation have proved that this disease is not due to an excess of blood in the system, but to an unequal circulation. To equalize the circulation is, therefore, a proper indication to be fulfilled. When the skin is clammy and cold, stimulants must be applied. The patient should be placed in a well ventilated room, ice applied to the head, and hot foot-baths used, followed by friction upon the extremities. A brisk cathartic should be administered, and if for any reason swallowing is impossible, a powerful injection must be administered. With the most skillful and careful treatment, recovery cannot be insured, as the quantity of blood discharged by the ruptured vessel may be so large as by pressure to paralyze the nerves, and indirectly, all of the vital organs. No time should be lost in summoning a competent physician in a case fraught with so much danger.

PARALYSIS.

1291. Paralysis, otherwise known as palsy, may be defined as a sudden or gradual loss of sensibility and motion in some part of the body. There are three forms of paralysis, viz: (1.) *Hemiplegia*, or paralysis of one side of the body. The seat of this affection is the brain. (2.) *Paraplegia*, or paralysis of the lower portion of the body, results from an injury to the spinal cord. (3.) *Local* paralysis, in which only one member, or portion of a member, is affected. It is often difficult to determine whether this form is central — originating in a morbid condition of the nerve-centres — or is caused by an injury to the distal extremities, as in cases of lead poisoning.

Other varieties are also mentioned as *facial paralysis*, palsy of the muscles of the face; *paralysis agitans*, or shaking palsy; *infantile* and *diphtheritic paralysis*.

Facial Paralysis, when accompanied by hemiplegia or palsy of one side, is the result of cerebral disease. But facial palsy often occurs during the most perfect health and produces no derangement whatever in the animal economy. Its sudden appearance is characteristic of facial paralysis, and terror, grief, a current of cold air, or habitual exposure to a damp atmosphere, are often its exciting causes. It usually involves only the muscles of one-half of the face, but in rare instances affects both sides.

In a complete facial paralysis, all natural expression is lost, and the patient cannot articulate words so as to be understood, without making a great effort.

Paralysis agitans is the name given to the irregular, purposeless tremors of the muscles, due to various causes, as the use of mercury, or a deranged nutrition of the nerve-cells, etc. The force of habit is especially noticeable in the perpetuation of this disease, for "the tremor, which at first, excited by some casual circumstance, might by appropriate means have been permanently stilled, when allowed to become habitual, exceeds our powers of control."

Infantile paralysis originates in various pathological conditions, and presents phases easily distinguishable from organic affections, by signs of inflammation in the spinal cord or brain.

Diphtheritic paralysis in its earliest stages extends from the tips of the fingers and toes to the trunk. This fact is not proof that the morbid condition does not reside primarily in the nerve-centres, but careful observation has shown that there exists no morbid organic change of the nerve-cells in fatal cases of diphtherial paralysis. Concerning the cause of this affection, Dr. C. Hanfield Jones, remarks: "As numerous cases of even severe diphtheria recover without any paralysis, it follows either that some special modification of the original poison must be generated in the system, or what is more probable, that a certain peculiar state of the nerve-centres is requisite to allow them to become paralyzed by the poison."

1292. **Symptoms.** Generally there are no premonitory indications of this disease, but instances are recorded in which the attack was preceded by the peculiar symptoms of apoplexy, as giddiness, transient numbness, loss of memory, drowsiness, etc. Sometimes it is gradual, and indicated by the numbness of a finger or toe, the paralysis soon spreading until a large portion of the body becomes affected.

1293. **Causes.** Cold, dampness, miasms, protracted muscular exertion and straining, are all exciting causes of this disease. Certain minerals, as white-lead, and also injuries of the spine, wounds, and unnatural postures (especially those which require twisting of the jugular vein) induce paralysis. Spermatorrhœa frequently results in this malady.

1294. **Treatment.** The indications of treatment for these various forms of paralysis are to remove the causes, if these can be determined, and rouse the functions of the paralyzed parts. Measures should be adapted to remedy the morbid conditions upon which this affection depends. Unfortunately, in most instances, this disease depends on lesions which are irremediable, so that even at best, success is only partial. The main object to be fulfilled, by domestic management, is to keep the skin clean and healthy, promote the circulation of the blood, especially in the palsied limbs, and encourage healthy nutrition. These ends may be best attained by the daily use of stimulating baths, frictions upon the surface, gently rubbing with the warm hand, the use of electricity or magneto-electricity, and by taking as much regular exercise daily as the patient can comfortably endure, in order to favor the preservation of the appetite and strength. Careful attention should be paid to the condition of the bowels, that they daily be evacuated. Next ascertain if the kidneys excrete the proper amount of urine. The circulation is sometimes aided by the manipulation of the palsied part by a person who is of a differently tempered constitution. These manual movements upon the surface of the body will often excite muscular sensibility, similar to that awakened by a weak current of electro-magnetism. The internal remedies should be such as to regulate the general functions of the system, while special medicines should be employed to stimulate the nerves and excite muscular contraction in the paralyzed parts. Those usually employed are the tincture of mullen seeds, strychnia, gelseminum, belladonna, quinine, rhus, ergot, etc.; and the use of these remedies must be directed by the skill and experience of those professionally qualified to administer them.

EPILEPSY. (FITS.)

1295. Epilepsy, also termed *falling sickness*, because its attack is so sudden that it oftentimes occurs without any premonition, is characterized by paroxysms which are denoted by loss of sensation and by convulsive movements of the muscles. In some cases the attack is preceded by giddiness, stupor, and indisposition; the patient occasionally experiences a wave of cold commencing at the feet and proceeding to the head, and as soon as it reaches

the brain, he falls and remains insensible from five to twenty minutes. At the onset of the paroxysm, the patient sometimes utters a piercing shriek, as though he had taken one full inspiration in order to be able to give a loud warning of his attack, and when it occurs during the still hours of night, the terrific cry is truly appalling.

1296. **Symptoms.** An epileptic attack is usually characterized by sudden loss of sensation, falling down and distortion of the eyes and face, the countenance becomes red and livid, there is foaming at the mouth, grinding of the teeth, the features are hideously distorted, the tongue is sometimes caught between the teeth, there is difficult, slow, deep, snoring respiration, and the violence of the attack continues from one to three minutes. The patient then makes a deep sighing inspiration, and the *convulsive* portion of the paroxysm is ended. These attacks vary in duration, severity, and frequency of repetition. After the fit, the patient lies insensible for half an hour or longer. When he first regains consciousness, he appears confused, complains of headache, is stupid, does not reply to questions, but seems bewildered and lost. He does not retain the least recollection of what has occurred to him. If he talks, he articulates incoherently, or if he walks, he staggers like one intoxicated. The intervals between the paroxysms become shorter, the convulsive attacks increase in severity but may continue for years, to dull the intellect and weaken the powers of the body, as well as of the mind.

1297. **Causes.** The exciting causes may be deep or broken sleep, loss of rest, passion, vexation, exhaustion or excessive venery. Likewise the presence of indigestible food in the stomach, retention of morbid matters in the intestines or blood, constipation, piles, or uterine irritation. The condition of the brain is that of venous congestion; at all events there is a derangement in the relation between the arterial and venous circulation within the head, which results in pressure upon the brain and suspension of sensation, thought and motion, as regulated by the will. The brain influences the functions of the spinal marrow, and just as soon as this pressure interrupts the action of the brain, the spinal marrow exerts its functional powers very irregularly, by the manifestation of disorderly, energetic and

ill-timed muscular movements. *Predisposing Causes* are, repeated attacks of convulsions during the period of infancy, scrofulous diathesis, unnatural form of the head, etc. Epileptic convulsions may be induced from a diseased condition of the liver, biliary concretions, granular kidneys, renal calculi, stones in the bladder, or worms in the alimentary canal. Strong mental emotion, fright, indulgence in intoxicating liquors, debauchery of all kinds, especially masturbation, the retrocession of eruptions, cessation of habitual discharges, or profuse and unusual ones, and finally tumors of the brain, may all predispose to epilepsy.

1298. *Preliminary considerations to Treatment.* From the mere enumeration of the many different causes which excite this malady, it is evident, I think, that there is no *one* compound which can be a specific remedy for the cure of epilepsy. It is hardly presumable that any preparation, no matter how valuable, will succeed while the patient continues the bad habits which first induced the paroxysms. It is scarcely supposable that the remedy which would prove a solvent of biliary concretion, will remove stones from the bladder, much less so improve an inherited scrofulous diathesis as to cure the patient of tumors of the brain. On the other hand, is it not utterly inconsistent and contrary to common sense, to believe that medicines used for any of the above purposes are calculated to remove uterine irritation, or provide against the effects resulting from retrocession of eruptions? The plain truth is, there is no *one* specific remedy for all cases of epilepsy, but there *are* specific remedies suitable for each curable case. These must be selected with judgment and adaptation, and applied according to the condition of the patient.

1299. **Treatment.** The treatment of this terrible disorder may be *curative* or only *palliative*. Some of its causes are removable, as for example, when it is induced by irritation arising from the presence of worms in the intestines, stone in the bladder, etc. It is sometimes caused by overloading the stomach with improper food, which is continued until an unnatural appetite imperiously demands gratification; this morbid craving must be restrained if epilepsy would be cured. Again, if it be the result of a disease of the liver, when that organ is restored in its functional integrity, the patient is exonerated from the attacks of epilepsy. If the blood becomes vitiated, and is gradually

restored to health by alteratives; or if the disease be induced by vicious and dissolute habits, these may be reformed and the patient recover. It is equally evident that it is a curable malady when it occurs in consequence of the disappearance of cutaneous eruptions, or from the suppression of customary discharges. Likewise, when caused by uterine irritation, if the latter disease be remedied, the former can be cured. I might continue illustrations of *curable* epilepsy, and however *difficult* or *complicated* a case may appear, there is nothing that can excuse apathy on the part of friends, or justify neglect on the part of the physician, for in all these and similar cases, there is reason to hope for a recovery.

1300. On the other hand, if the above enumerated causes be associated with a serofulous diathesis, or if the patient inherit a predisposition to this disease, his chances for recovery are not as promising. Again, when this disease continues until an epileptic physiognomy is recognizable, the memory enfeebled, fits frequent and accompanied by any form or degree of paralysis, the recovery is less probable, and the prognosis unfavorable. When it depends upon structural disease of the nerves or brain, as tumors on the brain, the case is hopeless.

1301. When the time of an expected paroxysm approaches, great care should be exercised lest the patient be suddenly attacked while carrying a burning lamp, or fall from some dangerous place, strike upon a heated stove or in some similar way do himself a great or mortal injury. During a convulsive paroxysm the patient should be placed on a bed, and cold, wet cloths applied to his head, at the same time allowing him plenty of fresh air. It is necessary to establish regularity in all the daily habits, otherwise a cure can never be effected. The strictest attention must be paid to the diet and the state of the bowels. If the fit occurs at the menstrual period, the feet should be placed in a hot water-bath, the bowels moved by a warm water injection and hot fomentations applied to the abdomen, the patient taking freely of my Fluid Extract of Smart-Weed. The time of the period should be passed in bed, so that the body may not become chilled.

1302. The diet should be simple and nutritious, but not stimulating, especially if the patient be inclined to plethora. If

accustomed to the use of intoxicating beverages, the patient ought to renounce them and become a teetotaler. The dress should be such as to keep the extremities warm and regular exercise should be taken in the open air. It is better to rise early in the morning, avoid all excitement or deep emotion, lay aside business cares, and be careful not to engage in excessive mental or bodily labor. All excesses and irregularities of life, of whatever kind, must be strictly abandoned.

The bowels should be kept regular by the diet if possible. To remedy constipation, use fresh vegetables, fruits and my Pleasant Purgative Pellets. The use of cold water injections will also assist in overcoming the torpor of the colon and consequent constipation. Rubbing the spinal column with the following preparation will be found beneficial : Alcohol, one pint; quinine, one drachm; tincture of red pepper, one or two ounces; mix. Rub the spine with this compound every night. I shall refrain from giving the details of special treatment, which cannot be available to the general reader and which must be especially adapted to the various conditions and circumstances of each patient in order to prove eminently serviceable. It is very evident that this class of diseases needs the benefit of an extended experience and great familiarity with its many phases and complications, for, without doubt, hundreds are abandoned as incurable who might, under a proper management, not only be relieved, but also completely restored to health and usefulness.

CASES TREATED.

1303. **Case I.** Miss Anna M., aged 18, accompanied by her parents, called to consult me in 1866. She had suffered from frequent epileptic convulsions for three years. By questioning her parents I ascertained that the convulsions had first made their appearance soon after a suppression of the menses. The paroxysms were more frequent and severe during the monthly efforts to re-establish the suppressed function, yet she suffered light attacks at other times. Becoming satisfied that the convulsions were caused by the suppression of menstruation, treatment was directed to encourage the restoration of that function. Powerful "driving" medicines were not employed, but by a judicious use of uterine tonics, as my Favorite Prescription

with iron, and, at the proper times, the employment of warm sitz-baths (§ 641), the menstrual function was restored, and as a result, the convulsions were arrested, and never afterwards made their appearance. The lady has since been married and is the mother of two bright, healthy children.

1304. **Case II.** George P., aged 20, had suffered from epileptic convulsions two years. His father consulted me by letter, in 1871, and sent a sample of the young man's urine for examination. The microscope revealed the presence of spermatozoa in the urine, and the father was informed that his son's disease was caused by self-abuse. Having been informed by the father of my opinion, George acknowledged that he had practiced masturbation ever since he was twelve years of age, but was entirely ignorant of its injurious effects. Moral restraint was thoroughly exercised over the young man by the father in order to prevent him from indulgence in this pernicious practice. When the habit of self-pollution is firmly fixed upon a young man, it is not always possible for him to summon fortitude and self-control sufficient to discontinue the practice. Medicines were prescribed and sent for the purpose of arresting the escape of semen. Nervines were also used to tone his shattered system. These means, with attention to diet, exercise, bathing and other hygienic observances had, within three months, worked a wonderful change in the young man's appearance, as his photographs sent me plainly indicated. A continuation of the treatment for five months more, with only slight changes to suit the symptoms arising from time to time, resulted in a perfect cure. Many young men and women are to-day suffering untold misery as the result of the terribly injurious practice of masturbation, so generally prevalent among the youth of our land, who are ignorant respecting the hygiene of the reproductive organs. For this reason I offer no apology for devoting a considerable space in this volume to the consideration of this subject.

1305. **Other Cases.** The list of epileptic cases on record at the World's Dispensary is a long one, and numerous have been the cures effected. The treatment has been varied to suit individual peculiarities of constitution, and a diversity of predisposing and exciting causes. The variations of treatment found necessary for the successful management of the disease,

are so frequent and necessary that I could hardly hope to make the consideration of further cases either interesting or profitable to the non-professional reader.

ST. VITUS'S DANCE. (CHOREA.)

1306. St. Vitus's Dance is an affection of the nervous system, and is characterized by involuntary contractions of the voluntary muscles. It may affect a part, or the entire body, although it is usually confined to the left side.

1307. **Symptoms.** Twitchings of the muscles of the face, which at first are comparatively slight, but as the disease progresses these spasmodic contractions become more decided, and the face is twisted into various shapes and forms. The head, in some cases, is constantly moving up and down, or from side to side. These convulsions (for such they really are) are succeeded by an idiotic look, and return again with as much intensity as before. It is with great difficulty that the tongue can be thrust out of the mouth, and then with a sudden jerk it is as soon withdrawn.

These convulsions, or contortions, affect the extremities in a similar manner, the hands and arms cannot be kept quiet, the gait is unsteady, and one foot is merely dragged after the other. If one limb be forcibly held, to keep it quiet, some other limb will involuntarily move. Strange as it may appear, these contractions, which cannot be controlled by the will during wakefulness, are very much lessened or arrested by sleep. One writer has remarked, "It would seem that the stimulus of volition is in some degree essential to this disease." If it be long continued, it is apt to weaken, or even destroy, the intellectual powers. The general health of the patient becomes impaired, the pulse is feeble, the pupils of the eyes dilate, the appetite is poor, the digestion deranged and the urine highly colored.

1308. **Causes.** These are not definitely nor satisfactorily understood. It is, by some, thought to be an affection of the brain, since the voluntary muscles are alone affected, the intellectual faculties are impaired, and there is loss of volition, for the will fails to control the irregular contractions of the muscles. This affection may be due to imperfect nutrition, depression of spirits, grief and fright. Some writers have attributed it to rheumatic affections, constipation, a morbid state of the blood,

suppression of the menstrual function, uterine difficulties, masturbation, blows, injuries, or any cause which would give rise to nervous debility. Some suppose that it is caused by obstruction in the alimentary canal, or by intestinal worms. It rarely occurs earlier than the sixth year, and generally between the tenth and thirtieth.

1309. **Treatment.** It is quite customary to use the phrase, "the *laws* of health," an expression indicating natural ordinances which should have the force of a command. In one sense, disease may be considered as the penalty attached to a violation of the *laws of life*. To carry out the similitude of this mode of speech, I would say that most disorders are retributive in their character. We unconsciously and many times knowingly infringe the laws of our being, and disobey the requirements of health, until judgment is rendered against us, and our transgressions are straightway followed by the pains of disease.

St. Vitus's Dance need not be singled out as *specially* illustrative of this idea, but it points to this moral, viz: *Disease is generally the sequence of enervating habits*. We may neglect to cultivate the physical health, to strengthen and invigorate the body; we may indulge in idleness and ease, or those practices which make us tender and delicate, but by thus degenerating the vitality and vigor of the body, the nervous system is weakened and prepared for the manifestation of this disorder. If we would obey nature, we must learn her injunctions, a knowledge of which we may gain in two ways, viz: (1.) By the study of physiology; (2.) By seeking after the causes of disease.

These remarks suggest to us the hygienic management of this disease. The disorder is a functional derangement of the nervous system, showing weakness, a failure of vital power, and a lack of the proper endowments of life. The hygienic treatment must be *sustaining*. Pure air, nutritious diet, and cold baths, are all essential auxiliaries. Friction upon the surface of the body with the warm hand is also very beneficial, and helps to establish the general circulation of the blood. After employing these manual methods for a week or two, commence taking regular walks, one in the middle of the forenoon, and the other in the middle of the afternoon, immediately after the bath, and gain on each walk from five to ten steps, according to the strength of the invalid.

The body should be well protected and the extremities warmly clad. If the bowels be torpid, make use of boiled cracked wheat, and those means advised under the head of constipation. In some cases I have prescribed blood-restoratives and anticonvulsive medicines with the most gratifying success. This disorder, as well as hysteria and epilepsy, is frequently amenable to nervines. When caused by derangement of the menstrual function, I have generally found my Favorite Prescription sufficient to effect a cure. I have cured several cases of this disease, caused by masturbation, by employing treatment adapted to control the spermatorrhœa which was undermining the constitution. In other cases I have had my attention directed, by the symptoms, to a morbid condition of the blood, and by the administration of proper remedies have been successful in effecting a cure. In others, with all of the facilities for investigation, I could discover no cause for the distressing convulsive manifestations. In such cases the treatment has necessarily been somewhat empirical, and not attended with the same degree of success as when the cause could be discovered.

NEURALGIA.

1310. Neuralgia is a term applied to a class of painful affections which are attended with no inflammation or perceptible change in the structure of the parts involved. The seat of the pain is in the nervous matter, and may either be manifested in the trunk, or extremities of a nerve. The attack usually commences gradually (sometimes suddenly), and the approaching symptoms are weight, dull pain, or uncomfortable feelings. It may announce itself by a sharp lancinating pain, darting and tearing away in an excruciating manner, and then suddenly ceasing, or the paroxysm may remit, and even intermit, to be renewed again at an uncertain interval.

1311. Neuralgia may put in an appearance wherever the nerves emerge, along their course, or at their minute terminations. Thus there are various forms, named from the locality affected, as neuralgia of the face, skin, muscles, leg, ribs, heart, etc. Some people are more sensitive than others, and are therefore more subject to neuralgic pains, which may be distinguished from the pain of inflammation by pressure upon the part

affected. If it be neuralgia, relief will be obtained by thus doing. Neuralgic pain is changeable, often increased by sneezing, or any violent movement of the body and sometimes continues in spite of treatment.

1312. **Causes.** The causes are very obscure; this disease will often manifest itself when the blood is impoverished and the diet is innutritious; as Romberg says, "It seems as if pain were the prayer of the nerve for healthy food." It is frequently induced by the passions or by violent emotions, excessive exercise, lead poisoning, and in consequence of mental depression, or from malaria. The paroxysms recur with such regularity as to indicate periodicity. It is true we really know but little concerning the causes and hence the treatment is to a great extent empirical.

1313. **Symptoms.** The distinguishing symptom is sudden, sharp and darting pain in some part; when in the face, it is called *tic douloureux*; in the heart, it is termed *angina pectoris*; in the hip and leg, it is known as *sciatica*, and between the ribs, it is designated *intercostal* neuralgia, which is liable to be mistaken for pleurisy. The pain of neuralgia is so agonizing, shooting and cutting that the feeling is described as that of red-hot wires piercing the part.

1314. **Treatment.** The treatment should have reference to the general condition of the patient. We must endeavor to ascertain whether the affection be caused by lead poisoning, malaria, or if it occur simply in consequence of general debility. We should be guided in our selection of remedies by reference to the causes. If we discover evidence of the influence of malaria, then tonics and antiperiodics are indicated. If from lead poisoning, use the white liquid physic, (¶ 1117). If the pain be local, as in sciatic neuralgia, wet a cloth in a rubefacient mixture of equal parts of spirits of ammonia, tincture of aconite root and chloroform, and hold it for a few moments upon the region of pain, just back and a little below the hip-joint. If it be located in the neck or back, dry cupping of the parts may afford relief. In facial neuralgia, which is sometimes excited by derangement of the stomach, a cathartic will at once relieve the pain. Electricity will, at times, mitigate the suffering, while at others, a spirit vapor-bath will allay the distress. If an anodyne

be required, use freely of my fluid Extract of Smart-Weed. In most cases the general health will be improved and restored by taking freely of my Golden Medical Discovery.

HEADACHE. (CEPHALALGIA.)

1315. Headache is not, properly speaking, a disease, but is a prominent symptom of very many maladies, and so large a proportion of mankind is afflicted with it that it deserves a distinct consideration. It assumes various forms and should therefore be treated under separate and distinct heads.

1316. **Organic Headache.** It is frequently difficult to determine to which class the various headaches should be assigned. This form, which is due to disease of the brain, is not easy to explain.

1317. **Symptoms.** The pain, in this kind of headache, is located in one place, is continued, deep-seated, severe and increased either by motion of the head, close mental application, any kind of excitement, or by the use of stimulants. Nausea, accompanied by vomiting, sometimes occurs, but it fails to relieve the pain. The memory is often impaired, the hearing as well as the vision temporarily fails, and paralysis or even idiocy may result.

1318. **Causes.** Brain disease—the cause of this headache—may be hereditary, and a person be predisposed to it, or it may be occasioned by injuries upon the head from blows, contusions, etc. In advanced age, the pain is persistent, doubtless in consequence of morbid changes occurring in the structures of the brain. One author has remarked: “At this period of life the energy of the nervous system is diminished, the stomach and bowels are less sensitive, the muscular tissue is no longer renovated with the ceaseless activity of adult life, and thickenings, indurations of, and morbid deposits in, blood-vessels and other tissues, are very common.”

1319. **Nervous Headache** is common to persons possessing an encephalic temperament, for they are usually very sensitive.

1320. **Symptoms.** There is severe throbbing pain in the top of the head and a swimming or dizzy sensation, dullness of mind and consequent loss of memory; the eyes are sunken, the

sight dim, the pulse low, the cheeks pale and the bowels constipated; the patient is low spirited, has cold hands and feet and suffers from general debility. Sometimes the attacks are sudden, the vision is impaired and the headache increased by keeping an erect position, while a recumbent posture diminishes the violence of the pain.

1321. **Causes.** This form of headache may be due to excessive exercise, improper diet, exposures to cold, variations of temperature, impure atmosphere, loss of sleep, debilitating discharges, self-abuse, etc. It is also incident to persons of sedentary habits, or those who closely devote themselves to mental pursuits. It may be the result of taking opium, alcohol or strychnia.

1322. **Bilious Headache** may arise (1) from an excessive amount of bile in the blood, or (2) from an immoderate secretion of bile.

1323. **Symptoms.** Pain in the head, especially in the forehead and over the eyes; the skin is of a jaundiced hue; the tongue is coated with a yellow fur and the taste is bitter. There is nausea and vomiting, which partially relieves the patient, on account of a portion of the bile being ejected from the stomach.

1324. **Causes.** This kind of headache is doubtless due to a morbidly active condition of the liver. Those who are intemperate in the use of food, or drink, or who are habitually careless of their health are liable to suffer from this kind of headache.

1325. **Sick Headache** is another form of this affection, to which nervous persons and those of sedentary habits are subject.

1326. **Symptoms.** There is a feeling of dizziness, pain in the forehead and temples, at first comparatively slight, but at length it becomes very severe, the vision is blurred, there is nausea followed by vomiting, after which the patient is inclined to sleep. Upon waking, he finds that his headache has disappeared, leaving a soreness in the affected part of the head. The breath is foul, the tongue coated yellowish white, and there is a general chilliness of the body.

1327. **Causes.** Immoderate indulgence in the use of spirituous liquors, indigestible articles of food, insufficient sleep, sedentary habits, constipation, mental anxiety, excitement of any

kind, insufficient exercise, or if plenty of exercise be taken; eating too soon thereafter. Headache may arise from a *plethoric* condition of the system, in which case there is severe pain in the temples and forehead, or in the back part of the head, attended with dizziness and dullness of vision; the respiration is difficult, the action of the heart unnatural, the pulse full and quick, the tongue coated white, the appetite good, but the bowels are constipated and the urine is highly colored. Some of the elements which enter into the composition of the urine, may be in excess or even deficient, and the action of the *urinary organs* may be abnormal, thus producing another form of headache. This is dull and heavy, the appetite is good, the bowels are in a healthy condition, the pulse is quick and low, but there is a feeling of general languor and indisposition. Those persons who are suffering from *syphilis* and have taken mercurials, are sometimes affected with headache, due to the action of these medicines. The pain is intense upon the top and sides of the head, and sometimes the skin over the painful part becomes raised. There is also more or less tenderness in the roof of the nose, sore throat and pain in the legs. Headache not unfrequently attacks those who have *rheumatism*. In this form the pain is dull, and located in the temples and back of the head; there is sometimes giddiness, drowsiness and soreness, as well as tenderness of the painful parts.

1328. **Treatment.** Concerning the management of all of these headaches, we may say that it is important to keep the bowels open, the skin clean, the kidneys active and the circulation of the blood well determined to the surface and extremities of the body. It is also necessary, in order to secure these important results, that the kind and amount of clothing be suitable, the daily habits regulated, and all excesses avoided. The diet should be moderate and easy of digestion; the patient should refrain from indulging in rich gravies, late suppers, or stimulating beverages. In organic headache not much can be suggested, except the hygienic recommendations above given. In nervous headaches, caused by overdoing, rest is necessary to recuperation. If produced by debilitating discharges, then a tonic course of treatment is indicated. If it be incident to a sedentary occupation, causing costiveness, exercise more, eat boiled cracked wheat

once a day and regulate the bowels with my Pleasant Purgative Pellets. The habits should be strictly governed, and temperance observed in all things. In bilious headache, the bowels should be acted upon by my Pellets, followed by my Golden Medical Discovery. Sick headache may result from some indiscretion in eating, anxiety, or loss of sleep, and may be relieved by taking an alkali, a Sedlitz powder, a Pellet or a stimulant. In a plethoric condition of the body great care must be taken to control the appetite. Medicines will furnish only temporary relief, and unless the desire for food be restrained, it is useless to resort to medicinal treatment. Likewise the amount of urine daily excreted should be estimated, for headache often results from a retention of some of the urinary elements in the blood. If the amount excreted be small, this circumstance should lead to a consultation with some physician; or, if syphilitic poison be lurking in the blood, then the use of the Golden Medical Discovery and Pleasant Purgative Pellets is proper. If these do not bring relief, the case should then receive a more critical examination by some competent physician. If the reader does not obviate the pains of headache by a strict observance of the hygienic rules which I have given, a skillful physician should be consulted.

INSANITY.

1329. In treating of the human temperaments I classified them as *vital* and *non-vital* (§ 192). I also made regional divisions for the purpose of illustrating the cerebral tendencies, and representing the antagonizing powers of the brain (Figs. 68, 71 and 78). I assumed that mental as well as physical perfection consists in the balance of all the faculties, and that any excess or deficiency results in derangement. A justifiable inference from such a hypothesis is, I think, that mental derangement may either result from the peculiar formation of the physical system, or from some functional disturbance. It does not appear unphilosophical to hold that the *volitive* region sustains an adverse relation to that of *feebleness*, and as the former, in the logic of thought, is the region of *sanity*, so the latter, accordingly, represents the region of *insanity*.

1330. To the former region I assign firmness, manliness and self-restraint; to the latter, indolence, morbidity and debility. No

one denies the proposition that every *morbid* state influences our imaginative, observant and reflective faculties. Disease makes us unreasonable, mars the process of thought, and when the enfeebling organs preponderate, the natural tendencies of which are despondency, fitfulness, rash impulsiveness, morbidity, mania and suicide, we begin to think that we have the representation of an insane temperament or diathesis, which may be hereditary.

1331. It is well-known that morbid structural changes may take place in the substance of the brain, without producing any derangement of the mental faculties, while numerous *post-mortem* examinations have detected no unnatural appearances in the brain, although insanity had existed for many years. Since pathological anatomy does not furnish the evidence of structural changes in the brain to account for derangement, we may infer that insanity is due to organic development, modifying and perverting its functions.

1332. I am of the opinion that the tendencies to insanity are associated with both the *basilar* and *feeble* organs, which strangely combine the action of the *violent* and *morbid* faculties. The entire base of the brain is developed not only laterally, but inferiorly, at least sufficiently so to pervert and distort the processes of reason. This development is indicated by the breadth and depth of the lower jaw, as well as by the prominence beneath.

Cretinism is a species of idiocy commonly accompanied by an enormous goitre, it is hereditary, and may be found in Switzerland. You may see in the valleys of the Pyrenees and Alpine mountains these unfortunates, in all stages of mental degradation, little better than the beasts of the field, helpless, dependent and limited to the exercise of the animal propensities. This may be regarded as a type of organization indicating insanity.

1333. We can easily decide whether the derangement arises from the abnormal development of the basilar organs of the *middle* or *posterior* base of the brain, for in the former case we have incoherence, dejection, feebleness, imbecility and idiocy; in the latter, morbid violence of passion, vehement propensities, vicious manifestations and raving madness. Idiocy and imbecility frequently appear in childhood; because congenital they are associated with lymphatic tendencies, whereas the active symptoms of insanity, dependent upon the growth of the posterior,

inferior faculties, do not develop until toward the period of puberty. During the period of youth and somewhat later, the derangement of mind assumes a more acute character than in middle age; the type of this disease is then more chronic, and frequently complicated with diseases of the stomach or other visceral organs.

1334. It is often said that the exercise of the religious faculties causes insanity. This I regard as a mistake. That a perversion of them may occasion insanity, no one will question; but a legitimate exercise of the religious faculties restrains the animal, and thus prevents moral and physical derangement. Religious *delusions* cause insanity, because these strongly appeal to the semi-animal faculties *fear* and *anxiety*, which co-operate with gloom, doubt and terror, until the forebodings of evil in the future state produce insanity. People are slow to learn that the terrors of the law do not inspire the emotive faculties, and *love* never predisposes to insanity, unless it be itself beguiled and betrayed by the animal propensities. Those who exercise an abiding faith, a confident hope, and are full of tender charity, rarely, if ever, become insane. On the other hand, to those who doubt the goodness of God, and turn His love into malignity, faith becomes unbelief, hope is supplanted by fear, and all their bright prospects, blackened by anguish, show the tortures of the blind, incensed and maddened passions. They rush on from desperation to suicide—into the black darkness and horror of an unknown future.

1335. The reader will obtain a more satisfactory view of this subject by reading ¶ 165, 168, 169, 170 and 171, which show that when the basilar functions are unduly aroused, the digestive, as well as the mental functions, become deranged. Any treatment, therefore, for insanity, which overlooks or neglects the condition of the digestive organs, will fail of success.

1336. **Causes.** The blending of certain temperaments in marriage, results in epilepsy, mental derangement, malformation of the body, idiocy, etc. Peculiar temperaments are not only most powerful in developing, but may be considered as predisposed to, insanity, because they indicate an organic combination of elements which gives rise to this disease. The cause, then, of insanity may be found in organic conditions, which not only

interfere with health but with the functional processes of the mind. Some persons are so constituted that they are easily deranged physically and mentally, while others continue perfectly sane under the most trying circumstances of life. Disease of the stomach or liver will cause insanity in some persons, while others will waste away and die from structural lesions of these organs, and exhibit no symptoms of alienation of mind.

1337. The causes of insanity may be organic, functional, general, local, moral, physical, predisposing or exciting. The functions of the mind are greatly influenced by those of the body. These in turn are affected by climate, age, sex, temperament, mode of living, disease, and all the vicissitudes of life. Fright in infancy, a blow upon the head, suppression of the catamenia, of hemorrhoidal discharges in both sexes, or of acute eruptions; inflammation, leucorrhœa, excessive venery, masturbation, hemorrhage, derangement of the circulation, cold, or anything that perverts the secretions; intestinal irritation, unkind treatment, neglect, chronic inflammation of the digestive organs, all may be mentioned as prominent causes of insanity. Men are frequently made temporarily insane by liquor, and when the habit of using alcoholic beverages is confirmed, they are led into excesses, debauchery and crime by the moral and physical derangement thereby produced. Women are more emotional than men, consequently when love terminates in passion, disappointment and jealousy, it wholly upsets dignity, propriety, self-respect and reason. When the basilar faculties are disordered, the insane are boisterous, profane and obscene; they will steal, lie, gratify their propensities and talk and act in the most presumptuous and audacious manner imaginable. After the ravings, reaction may take place, the imaginative powers become vividly sharp and active, and the thoughts and language may flow "in a placid yet rippling stream of taste and fancy." They often sing, pray and talk almost as if divinely inspired. But the least provocation will suddenly turn all beautiful expressions and interpretations of these waking dreams and heavenly visions into frightful imprecations and awful maledictions that make one's blood run cold.

1338. **Symptoms.** The symptoms that indicate aberration of mind may at first be very slight and trifling. They

may manifest disturbance of the feelings and disorder of the propensities and the patient become gloomy, dispirited and apprehensive. There seems to be a *morbid perversion* of the perceptions, affections and active powers; he shuns his nearest relatives, is jealous, suspicious, capricious, commits theft, has a propensity to mischief, hides away valuables, has an impulse to destroy life, in short, acts from false impressions. He is restless, whimsical, easily excited, eccentric, extravagant, disturbed in mind, becomes irregular in his habits, cannot sleep, loses his appetite and is easily provoked. These symptoms may be accompanied by delusions, as the hearing of strange sounds and imaginary communications, or conversing with unseen persons. He fancies that he has lost a leg, an arm or is headless, that he represents some animal, personates some beautiful character, or is changed to some other form and sees whatever the imagination conjures up. Those subject to the last named delusion are thus aptly described by Pope:

“ Unnumbered throngs on every side are seen,
Of bodies changed to various forms by spleen;
Here living tea-pots stand, one arm held out,
One bent; the handle this, and that the spout;
A pipkin there, like Homer's tripod walks;
Here sighs a jar, and there a goose-pie talks.”

He shows strange likes and dislikes, the judgment is perverted, he loses interest in the common affairs of life, experiences optical illusions, suddenly and causelessly laughs or cries, refuses food, expresses erroneous ideas, is disposed to court solitude, hides away from observation, divests the body of clothing, looks anxious, silly and stupid, or has an oblique look, manifests quickness of perception, sharply scans the motives of those around him, etc.; these and similar symptoms indicate mental derangement.

When the inception of insanity is insidious and its progress slow, the brain and abdominal organs are both more or less diseased. It is important to discover the early symptoms, such as absence of mind, or the alteration of manner denoting mental derangement, and arrest them by proper treatment, in order that it may not become a case of confirmed insanity. Seek early the best medical advice, for every day, every hour lost, is of vital moment.

1339. **Prognosis**, is the judgment formed by the physician as to the *progress, curability, and termination* of the disease. His opinion depends upon whether insanity be an organic disease or a functional disturbance of the nervous system, and he should also take into consideration the severity of the attack and the power of the constitution to resist it. Nothing is more apparent than that patients readily improve under the treatment of one physician, when they receive no benefit whatever from others.

1340. If the aberrations be merely whimsical, transient and occasional, however wild or absurd they appear, the prognosis is favorable. When inebriety is the cause of insanity, it is curable. So likewise when patients are under the dominion of passion, are perverse, and yet the mental faculties are not impaired, the prognosis is favorable. When dislike and distrust of friends are succeeded by a desire for their visits and companionship, it is a good symptom. If those who are mischievous and disposed to thievery, or to destroying things, receive early treatment, they are generally curable, although when the propensity to mischief is hereditary and very strong, the disease is frequently incurable. When the hallucinations are absurd, and yet the reasoning faculties are good, the case is curable. If the attack be sudden and violent, or follow the cessation of discharges, or disappearance of an eruption, it is amenable to treatment; or if it follow from the suppression of hemorrhoidal discharges, or occur in consequence of exposure to cold, or from loss of sleep, fright, etc., proper treatment promises restoration.

1341. Insanity indicating *difficult management* is apt to follow a fever of an inflammatory type attended with considerable cerebral excitement, especially if this invasion be insidious and progress slow, or when it is preceded by an attack of paralysis or epilepsy. If the patient appears conscious of the absurdity of the delusion under which he labors, a permanent recovery is doubtful. If the perversion of the judgment arises from the influence of the passions, treatment will generally be successful, except when it is deeply rooted and fixed. This indicates incurable monomania.

1342. The prognosis is *doubtful* and *unfavorable* when the attack is insidious, gradual and slow, connected with defect of memory, forgetting his own name, country, and trade, his place

of residence, or recollects certain circumstances of a transaction, but not all, or when the recollection of past events gradually fades from the mind. Likewise, when the patient assumes that he ranks high in life, and yet retains a correct idea of his personal identity; if the natural tone of the voice be materially altered, the articulation indistinct, the swallowing difficult; or if the patient turn a deaf ear to all that is said to him, and yet is intent upon listening to imaginary communications; when melancholy succeeds furious mania, or if there be a constant clapping of the hands, drumming of the feet, sitting all day in the same place and position. Whenever insanity is complicated with disease of the lungs, or is manifested by a constant biting of the nails, the features constantly bearing the impress of terror,—these are circumstances and symptoms which lead to an unfavorable prognosis.

1343. **Treatment.** The treatment of lunatics should consist in hygienic observances, moral management and the administration of proper medicinal agents. I shall dwell upon the first two considerations embraced in the treatment above mentioned,—the latter belongs more especially to the province of physicians, who are already qualified and need no particular suggestions from me.

I may remark concerning the diet of the insane. They are usually violent or preternaturally active, and excess of nervous excitement requires a greater abundance of food, which should be of a nutritious quality. I have treated those who, even when their appetites were good, would refuse to eat, and could only be persuaded by repeated, gentle solicitations.

1344. Beef and mutton are allowable, but pork, fresh or salted, and veal, are generally objectionable. The diet must be regulated to suit individual peculiarities, as what will do well for one may be entirely unsuited to another. Graham bread, biscuit and gems, cracked wheat, baked apples and stewed prunes, are grateful articles of diet and tend to produce regularity of the bowels. The supper should be light. Occasionally fish or oysters may be eaten; white bread and johnny-cake add to the variety of substantials. It is important that the diet keep the bowels regularly open and sustain the strength of the patient.

1345. The *moral* treatment of the insane requires that the

physician obtain the confidence of his patient. He must be guarded in all of his communications, candid, frank, scrupulously truthful, and avoid all appearance of strategy or double-dealing. He should make few promises and fulfill each one literally; he should consider all engagements and pledges sacred, and never deceive his patient in manner or speech, but be sincere, confident and perfectly reliable. The insane require accurate, faithful and honorable treatment, otherwise moral management is a misnomer.

1346. Four-fifths of all who are mentally deranged can be restored to reason if the malady be properly managed in its earliest stages. It is essential that the insane be treated with gentleness, kindness and respect, that their minds be diverted and they be removed from all exciting causes. They should be allowed amusements, diversions, innocent games and means of enjoyment, and as soon as possible be taken from their families or homes, and placed under proper remedial management. They may be allowed (according to the judgment of the physician) books, music and checkers to occupy the mind, or be permitted to engage in some light exercise, as playing croquet, gardening, needlework, and such employment as may be of benefit to the body.

1347. Never make the insane the subject of remark, mirth or derision, no matter how absurd they may talk or act. If they are violent, they should be gently and carefully restrained and prevented from doing themselves or others injury. Lunatics often entertain a high sense of honor and delicacy; even those who, in their moments of excitement, may talk very unbecomingly, in their lucid intervals will remember any breach of decorum or impropriety of speech in those having charge of them. Always treat the insane with calmness, firmness and patience, and never betray any sign of impatience, or the least wavering of the determination. Always show kindness, courage and perfect self-control, and never give an order unless it be strictly enforced.

Attention must be paid to cleanliness, regular exercise, diet and occupation of the invalid, in short, all of the symptoms and surroundings must be carefully considered when medical treatment is instituted. I shall not enter upon the details of remedial conduct, nor discuss the relative value of medical agents, since these disorders and their management constitute one of the

specialties of medical practice with all classes of physicians. I have devoted much time to the investigation of these derangements, and find them just as amenable to treatment as any disease.

1348. One fact I wish to impress upon all, that most patients treated for insanity are too soon dismissed as cured. Unless the treatment is continued they are very liable to relapse. It is a great mistake to omit treatment when a promising lucid interval has been reached. The natural predisposition, or the functional tendency, may yet remain, and the patient needs to continue a course of hygienic and medicinal treatment long after the period of *apparent* convalescence is established. All perversion of functions, in consequence of morbid changes in the secretions must be remedied, and the removal of noxious materials from the blood must take place gradually, and hence the use of remedies should be continued for a long time, until the general health becomes fully confirmed and thoroughly established.

CASES TREATED.

1349. **Case I.** Mrs. P., of Pennsylvania, became so deranged in 1870, that her friends made preparations to take her to an insane asylum. She also suffered from catarrh, and was persuaded to use Dr. Sage's Catarrh Remedy, associating with it constitutional treatment, and, wonderful to relate, it cured her of her insanity, and her health has continued excellent ever since.

1350. **Case II.** Miss E. S., was insane four years, had been an inmate of the Utica Insane Asylum, and several physicians had said that she could never be cured. In April, 1873, I was called to attend her, and from the symptoms and history of the case, came to the conclusion that the uterus and ovaries were the centres of irritation, for the menses had not appeared for a great length of time. Accordingly, I gave my Favorite Prescription, although it was with great difficulty that she could be induced to take any medicine; in fact, it had to be mixed with her food. I also gave her my Golden Medical Discovery, and in due time, she became rational. In her case (as in similar ones), to insure a permanent cure, it was necessary to persevere in the use of medicines. If treatment be discontinued too soon the patient will surely relapse.

1351. **Case III.** Mrs. M. S., had become insane and regarded all her relatives as enemies who had entered into a conspiracy against her, and she thought the worst one of all was her husband. She was placed under my treatment, and in four months went home entirely rational. I continued her treatment until she seemed to be fully restored to health, and she has remained well for the last five years.

1352. **Case IV.** In 1874, a young man from the South presented himself for treatment at the World's Dispensary, his ill health and derangement of mind being caused by the habit of masturbation. He was very excitable, wild, and impulsive, and his imagination and judgment were both perverted. He insisted that his testicles were greatly enlarged; that each one was nearly or quite the size of his fist. Upon examination, I found them less than the ordinary size. I gave him the appropriate treatment, and in a few months he regained his reason, health and strength. I have treated many cases of mental derangement, produced by indulgence in this degrading habit, and, were it necessary, might refer to a long list of those who have been permanently cured.

1353. **Case V.** Miss A. H—, a teacher in a seminary, and a lady of excellent attainments, had labored hard, mentally, to advance the interests of her pupils, when, from overdoing, religious excitement, and taking cold, she became suddenly and acutely deranged. She was wild with excitement for a few days, would tear off her clothing, hide herself away, and finally, had to be restrained from doing violence to herself and others. This state was succeeded by apathy, loss of speech and dementia, and she would pass her urine and fæces in the bed. She was attended by skillful physicians, but they did not succeed in relieving her of any of her symptoms. About a month after this attack, she was brought to me for treatment. She had not spoken a word for two weeks, nor did she seem to understand what was said to her. Finally, under my treatment she began to recover; but even after she regained her speech, she could not tell her letters. Slowly her consciousness and knowledge returned, and six months from the time of the attack, she returned home as a convalescent. She continued to gain in health and strength, though it was nearly or quite a year before she fully recovered.

She is now married, has several children, and considers herself a robust and healthy woman. I might enumerate many cases which I have treated for this disease, but the subject of insanity has already exceeded the limits assigned it; I therefore omit further reference to cases.

DISEASES OF THE EYE.

1354. The eye is subject to numerous diseases which, although rarely fatal, yet occasion great inconvenience and suffering, and require skillful treatment.

1355. **The term "Ophthalmia"** may be applied to all inflammations of the eye, but is usually restricted to inflammation of the conjunctiva—the membrane which covers the external surface of the eyeball and the inner surface of the lids.

1356. As prefatory to this subject, I desire to impress upon the mind of the reader the important fact, that these maladies are not merely *local* departures from health, but are generally associated with *constitutional* disorder. The prevailing notion that they are strictly local derangements and require only local applications, is altogether incorrect, and the neglect of constitutional treatment will result in a failure to cure these affections. The use of "eye-waters," "eye-salves," and kindred preparations, without reference to constitutional treatment, will generally prove to be of no benefit whatever.

SIMPLE INFLAMMATION OF THE EYE.

(CATARRHAL CONJUNCTIVITIS.)

1357. This disease, also called "Catarrhal Ophthalmia," is the most simple form of inflammation to which the eye is subject.

1358. **Causes.** It is usually the result of cold, suppressed perspiration, sudden changes in the temperature, heat, smoke, intensity of light, extension of the inflammation of the mucous membrane of the nose and irritation from dirt or foreign bodies. Some persons are predisposed to these attacks at certain seasons of the year, without any apparent cause. By using the same towel it may be communicated from one person to another.

1359. **Symptoms.** At first there is a sensation of dryness and smarting, as though dirt were in the eye. Soon that organ becomes swollen and is more or less painful; there is

headache, intolerance of light, a profuse lachrymal secretion, and if the inflammation continue, it terminates in a muco-purulent discharge. On separating the lids the eye appears swollen, red and angry. In severe cases there is more or less fever. When this inflammation is neglected, or improperly treated, it is apt to result in some form of chronic disease. If small blisters appear on the eye, the disease is termed *Phlyctenular Conjunctivitis*, if ulcers, it is called *Pustular Conjunctivitis*.

1360. **Treatment.** It must be remembered that this disease involves constitutional derangement, and should be treated by attention to the general as well as the local disturbance. First, give a brisk cathartic, after which the spirit vapor-bath and mustard foot-bath (§ 630, 640) should be employed. The sweating which they produce must be continued with diaphoretics (§ 548) and small doses of aconite (§ 596) or veratrum (§ 597). Give one of my Purgative Pellets three or four times a day. If the patient be feeble, the constitution badly broken down and the powers of life reduced, then tonics rather than sedatives should be used, *e. g.*, iron (§ 618) and quinine (§ 496). As soon as the active symptoms begin to subside, alteratives should be given, in which case my Golden Medical Discovery will be found very efficacious.

1361. Keep the eye well cleansed with tepid water, or milk and water, exclude all light, and drop into it every three hours the following lotion: Take fluid extract of aconite *leaves*, one drachm; fluid extract of belladonna, one-half drachm; water, one ounce; mix. After a few days, mild astringent lotions may be employed, for which purpose a weak infusion of hydrastis (§ 613), or witch-hazel (§ 518), or one grain of white vitriol (sulphate of zinc) in two ounces of pure water, are among the most useful.

1362. In the Phlyctenular or Pustular form, there is always a depravation of the general system, which requires alteratives and tonics. My Discovery and Pellets should be administered, and may be alternated with quinine and iron. The same local remedies recommended in the treatment of *simple inflammation*, may be used in this case; also a solution of one grain of nitrate of silver in one ounce of rose-water, applied to the eye three times a day, will be found beneficial.

PURULENT INFLAMMATION OF THE EYE.

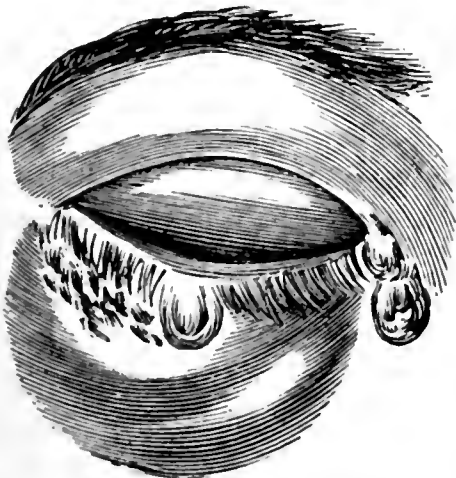
(PURULENT CONJUNCTIVITIS.)

1363. This disease, also frequently called *Egyptian* or *Military* Ophthalmia, progresses with great rapidity. The inflammation is intense, and all the symptoms of the simple form are greatly aggravated. The active stage is short, the swelling of the eye is extensive, and pus (matter) is produced in great abundance. The cornea (§ 135) is liable to be penetrated by ulceration or it may become opaque, and the sight be greatly impaired or entirely lost. There are two other forms of this disease, known as *Gonorrhæal Ophthalmia* and *Ophthalmia Infantium Purulenta*.

1364. **Causes.** Purulent Conjunctivitis may occur spontaneously in the adult, or the simple form may become purulent from neglect or improper treatment, or it may arise from local irritation. It is usually caused by contagion, since it is communicated by wiping on the same towel, or in any way by which a particle of matter can be conveyed from the eye of one person to that of another. It sometimes occurs as an epidemic.

1365. **Diagnosis.** The symptoms are similar to those of the simple form of conjunctivitis, though much more intense, and there is more constitutional disturbance. The eye is enormously swollen and matter freely flows from between the lids, as illustrated by Fig. 156.

Fig. 156.



Purulent Conjunctivitis.

If the lids be separated, the eye will be seen to be full of pus (matter), and if wiped or washed away the membranes will appear intensely red, the blood-vessels very much swollen, and perhaps numerous small points of ulceration will be seen. The chief danger lies in the liability of the cornea being destroyed.

1366. **Treatment.** This must be active from the outset, and well persisted in, or the eye will be destroyed. Confine the patient in a well-ventilated but darkened room. Make his surroundings hygienically perfect.

Bathe the eye frequently with tepid water, or milk and water, and cover it lightly with cloths wet in the same, changing them often. Never bind anything heavy over an inflamed eye so as to keep it warm, as all such applications aggravate the inflammation and in this disease favor suppuration. If only one eye be involved, care should be taken to protect the other, as well as the eyes of the attendants. Give a brisk cathartic, and if the tongue continue foul, repeat it as often as necessary, and throughout the disease give one of my Purgative Pellets every four or six hours, unless they move the bowels too frequently, when the interval should be extended. Use the spirit vapor-bath (§ 630) and if the pulse be quick, full and hard—symptoms of high inflammation—give such sedatives, as aconite (§ 596), or veratrum (§ 597), in appropriate doses. The diet should not be stimulating. If the general health of the patient be impaired, alteratives and tonics must be used, and a more nutritious and generous diet allowed.

1367. *Locally*, use the tepid water bath often, keeping the eye well cleansed. Various washes have been advised, as two grains of white vitriol (§ 504) in one ounce of pure water, or nitrate of silver in the same proportion, to be used two or three times a day, until the virulent character of the disease is overcome. Antiseptic lotions are of great value. Permanganate of potash (§ 505), three grains to an ounce of pure water, applied freely several times a day, is unsurpassed in the early stage. A solution of one grain of the *sulphate of atropia* (§ 483) in one ounce of rose-water, should be used, two or three drops being applied twice a day to keep the pupil dilated. Always cleanse the eye with tepid water before making any application. The services of a skillful oculist should be secured, if the disease does not quickly yield to the above treatment.

1368. *Gonorrhœal Ophthalmia*. This is caused by the introduction of gonorrhœal matter into the eye. It is the most violent, rapid and destructive form of ophthalmia known, and often ruins the eye. The symptoms are similar to those of the preceding form, though much more rapid in their development and more destructive in their tendency. If the patient have gonorrhœa the diagnosis is simplified.

1369. **Treatment.** The treatment does not materially

differ from that advised for simple purulent conjunctivitis, but must be very active. Astringent lotions of nitrate of silver or sulphate of zinc may be used as heretofore recommended, or antiseptics may be employed with advantage, as the permanganate of potash, five grains to one ounce of water. No time should be lost in securing the services of a physician of large experience in treating this disease.

PURULENT OPHTHALMIA OF NEWBORN CHILDREN.

(OPHTHALMIA INFANTUM PURULENTA.)

1370. This affection usually occurs soon after birth, and may be caused by an acrid condition of the vaginal secretions of the mother; harsh washings with soap, sponge or cloths, by careless nurses; exposure to strong light, or cold; or it may be communicated from one child to another. Overcrowded tenements, poor ventilation, insufficient nourishment and scrofula are predisposing causes.

Although this is classed with the purulent variety it is generally very mild in its character. It can usually be recognized by the swelling of the eyes, intolerance of light and purulent discharges.

1371. **Treatment.** This should consist in cleanliness, ventilation, good nourishment, washing the eyes with tepid milk and water, and applying light, wet cloths to them. Mild astringent lotions should also be dropped into the eyes, as a weak infusion of witch-hazel (§ 518), or hydrastis (§ 613). Simple rose-water is often sufficient, or one grain of sulphate of zinc, (§ 504), added to four ounces of rose-water may be employed. One grain of permanganate of potash (§ 505) to two ounces of pure water is excellent. With this treatment, the disease generally terminates favorably in from two to six weeks.

SCROFULOUS INFLAMMATION.

(SCROFULOUS CONJUNCTIVITIS.)

1372. The course of this disease is usually slow, and recovery postponed, on account of the enfeebled condition of the constitution. It may affect all parts of the eye, and under the old fashioned treatment was rendered exceedingly intractable, but,

thanks to modern medical advancement, it can now be controlled as well as other forms of inflammation.

1373. *The immediate cause* of scrofulous conjunctivitis is anything which is capable of exciting inflammation. The scrofulous diathesis (§ 806) is a predisposing cause.

1374. **Symptoms.** Ordinarily these do not differ materially from those of the acute form of simple conjunctivitis, though they are less severe. The lachrymal secretions (tears) are excessive and run over the cheek. There is intolerance of light, the eyes are spasmodically closed, the brows depressed, the cheeks drawn up, and the child involuntarily covers his eyes with his hands, since the light cannot be endured. On separating the lids, which offer considerable resistance, the tears escape. The inside of the lid as well as the eye is red and swollen, with here and there pinkish colored blood-vessels running toward the center. The membrane covering the eye is frequently thickened and ulcers are apt to be found on the cornea, which may become hazy and opaque.

1375. **Treatment.** Heretofore the treatment of scrofulous ophthalmia has been difficult and unsatisfactory, partly from the opposition which the child offers to an examination, or the application of remedies locally, and partly from the fact that the local disease depends upon a constitutional affection which has been difficult to overcome. Under these circumstances the cure has necessarily been delayed, if not entirely prevented. Although *immediate* benefit may not be received from the treatment, yet the remedies should be continued. The treatment must be general as well as local, or it will fail; for, no matter how skillful or scientific the local treatment may be, unless the constitutional condition be improved, the local affection will return. The general hygienic directions advised under the head of scrofula (§ 812) will be appropriate, together with the persistent use of my Golden Medical Discovery in proper doses. If the constitution be anæmic or broken down, some of the bitter tonics, as gentian (§ 610), dogwood (§ 611), hydrastis (§ 613), or wafer-ash (§ 617), with iron (§ 618) alternated with the Discovery will give the best results. This method of treatment has cured hundreds of cases where the old method of relying entirely upon the local application of strong lotions has failed.

Locally the treatment should be of an astringent character, for which make a tea of soft maple, bark of root, or a strong infusion of hydrastis (§ 613) and witch-hazel leaves (§ 518); two parts of the former to one of the latter, dropped into the eye, five or six times a day will produce good results. Cleanliness is absolutely necessary and the forehead and eyes should frequently be bathed with cold water. Dr. Sage's Catarrh Remedy used weak is an excellent eye lotion. Nitrate of silver is recommended by some, but it must be used with caution, and the strength should not be more than that of one grain in three ounces of water. Blisters applied to the temples or to the back part of the neck are often employed in this affection, but I question their utility. In making local applications, the lotion should be *put into the eye* and not on the face, even if the child have to be forcibly held. When the disease shows no sign of improvement under this treatment there is evidently some fault that has been overlooked, and professional advice should be obtained. In consulting a physician, that one should be selected who makes diseases of the eye a specialty, for the eye is too delicate an organ to be tampered with, and not one doctor in a hundred understands its minute anatomy and pathology, and the proper treatment of its diseases.

CASES TREATED.

1376. **Case I.** This case, a fair sample of hundreds of similar ones treated at the World's Dispensary, serves to illustrate the success of mild means in overcoming this disease. Rosa B., aged six years, was brought to the Dispensary in 1869. She was scrofulous, and had been troubled with sore eyes nearly all her life. When I first saw her, she could not open her eyes, so great was the spasmodic contraction of the lids, and her hands involuntarily covered them from the light. She was feeble and delicate, though unusually bright and intelligent. On attempting to separate the lids there was a profuse discharge of hot tears; the eye was red, swollen and ulcerated at several points.

Treatment. A liberal nourishing diet, outdoor air, exercise, bathing and other hygienic treatment was advised. The eyes were kept well cleansed with tepid water, and several times each day astringent lotions were applied to them, varied in composition as the eyes improved. I directed her to wear a colored

shade, in order to modify the intensity of the light, and to take the Golden Medical Discovery, with such tonics as her condition demanded. In two months she was so much improved that her mother returned home with her. Her eyes continued weak for some time, but by persevering in the same treatment, with the use of the compound lotion of golden seal and witch-hazel, she was restored to perfect health.

CHRONIC INFLAMMATION OF THE EYES.

(CHRONIC CONJUNCTIVITIS.)

1377. Whenever any form of acute inflammation of the eye passes into a chronic condition, more or less morbid changes occur in its external membranes. It is most frequently met with in persons who are debilitated or who suffer from constitutional contamination, and whose recuperative powers are low. The disease is sometimes, however, produced by overtaking the sight by reading fine print, or other work which strains the eyes, or employing them closely by a strong or insufficient light. In this form, the disease may be sub-acute or chronic from the commencement, may come on slowly, or advance and recede alternately.

1378. **Symptoms.** The eye presents a vermilion red, or blood-shot appearance. The blood-vessels become enlarged, or tortuous, and may be seen to form a net-work, the color of which is deepest near the circumference, and spots of extravasated (discharged) blood may be seen in the membrane covering the eye. There is a sensation as if sand were in the eye, there is intolerance of light, the lids are swollen, tears are discharged, a drop of matter may be seen in the corners, which varies from a mucous to a muco-purulent secretion. These symptoms may continue for months, or even years, according to the circumstances of the patient.

1379. **Treatment.** Until within a few years the treatment of this affection has been very unsatisfactory, simply because the eye was considered the only diseased part of the system, and consequently it was doctored and tortured, while the true nature of the disease was imperfectly understood and wholly overlooked in the treatment.

1380. Correct treatment consists in improving the general health by every possible means. Any faulty condition of the

system that may be present, as syphilis, debility, rheumatism, anæmia, scrofula, etc., must receive special attention and proper treatment. Strict attention to ventilation, exercise, bathing, diet, etc., are also of great importance. Keep the absorbents, as well as the secretions, active, by giving my Golden Medical Discovery and Purgative Pellets, and if the patient be robust, these remedies should be given in doses sufficient to produce a free action of the bowels. If, on the other hand, the patient be weak, feeble or debilitated, give the same remedies, but in less quantities, and alternate with tonics. If constitutional contaminations, as scrofula and syphilis exist, use such treatment as I have advised for those diseases.

Keep the eyes well cleansed by bathing them with Dr. Sage's Catarrh Remedy, and use the astringent lotion of golden seal and witch-hazel, as advised under the head of Scrofulous Conjunctivitis. If to four ounces of this lotion, half a drachm of borax be added, it will be rendered more efficacious. Two grains of sulphate of zinc and one grain of morphine to an ounce of rose-water, make a good "eye-water" for this chronic affection. A solution of one grain of nitrate of silver and one grain of morphine, in one ounce of water, is also a proper application. Let it be remembered that whenever there is any ulceration, sugar of lead, as a local application, should never be used, for it will very likely produce opacity, by adhering to the parts and becoming oxidized. The lotions already advised are about the only ones that are safe in non-professional hands, but under the direction of the qualified physician others may be employed to good advantage, to meet such conditions as are present in individual cases. The art of discrimination is essential to success in the treatment of this chronic malady, and can only be acquired by long study and wide experience. Hence the specialist very often succeeds in curing cases which prove intractable in the hands of the general practitioner; for although the latter may have an extensive general practice, he may not have as many cases of this disease in a whole year as the specialist has in a single day.

CASES TREATED.

1381. **Case I.** Daniel W., aged 40, came to the World's Dispensary in 1872. He was suffering from chronic conjunctivitis

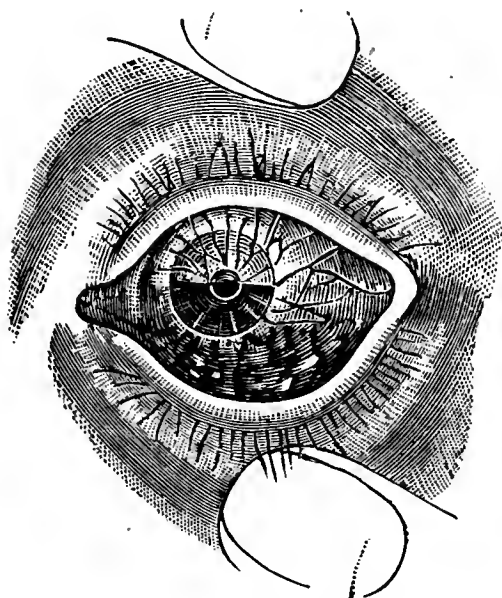
which for several years had resisted all treatment received from his home physician. Examination revealed increased redness of the conjunctiva, and the blood-vessels were enlarged and tortuous. Several ulcers existed, there was a considerable muco-purulent discharge, and his general health was very much impaired.

Treatment. I directed him to thoroughly observe the rules of hygiene, and gave him suitable alteratives and tonics. The eyes were kept well cleansed, a mild tonic and astringent lotion was applied to them and the ulcers touched once a week with a pencil of sulphate of copper. At the end of one month he had so greatly improved that he was allowed to return to his home in Pennsylvania, and a continuance of the constitutional treatment for a month longer effected a perfect cure. This is but a fair representative of the numerous cases recorded at the Eye Department of the World's Dispensary.

GRANULAR LIDS. (GRANULAR CONJUNCTIVITIS.)

1382. Although this affection is usually spoken of as *granular lids*, yet it generally extends to that part of the conjunctival membrane which covers the globe of the eye, as may be seen by

Fig. 157.



Granular Conjunctivitis.

reference to Fig. 157. It cannot strictly be considered as a distinct form of conjunctivitis, as it is generally either a result or a concomitant of other forms, and is apt to occur if they be long-continued. The granulations consist of enlarged papillae projecting from the conjunctiva, and in the milder cases give to the inner surface of the lids a velvety appearance, but in the more aggravated forms a wrinkled, seamed or warty appearance. The disease attacks those generally of broken-down or anæmic constitutions, or whose systems are depraved by previous disease. It prevails to a great extent among the

broken-down or anæmic constitutions, or whose systems are depraved by previous disease. It prevails to a great extent among the

poor, or those subject to many privations, although it is not confined to this class. Granular lids are apt to be accompanied with a profuse secretion of tears, and sometimes pus (matter), which not unfrequently leads to ulceration and opacity of the cornea, as shown in Fig. 157.

1383. **Treatment.** Considerable time is frequently necessary to effect a cure, and all measures will fail unless the general health be restored, the bodily functions improved and healthy materials elaborated to replace the diseased and worn-out tissues. Consequently all complications must be carefully considered, and such *constitutional* treatment adopted as the nature of the case demands.

1384. The thickened condition of the conjunctiva must be removed by absorption, and to this end the processes of waste and nutrition should be kept active. This can be accomplished by the employment of my Golden Medical Discovery and Purgative Pellets, which may be combined or alternated with such remedies as may be indicated. Tonics are also generally required, together with a perfect observance of hygienic rules. If the patient be scrofulous, syphilitic, rheumatic or anæmic, the treatment recommended elsewhere in this volume for each of those affections will be appropriate in this case.

1385. The necessary local applications cannot be well made except by the specialist who is prepared with proper instruments needful in treating diseases of the eye. Caustics are sometimes necessary and by some the knife is used to cut or scrape away the granulations. True, stimulating lotions may be made by the patient, but he will experience great difficulty in selecting the proper ones suited to his case. The knowledge and judgment necessary for such discrimination can only be acquired by *experience* in the treatment of this disease.

CASES TREATED.

1386. **Case I.** Ezra P., aged 38, applied for treatment at the World's Dispensary in 1873. He was first attacked with conjunctivitis which terminated in granulated lids. His constitution was feeble, and general health not very good. The Golden Medical Discovery and special tonics were prescribed. I applied the solid sulphate of copper by penciling the lids every

third day for two weeks, after which I used it but once a week. At the end of the second month he returned home. His eyes, though weak, were free from inflammation, and his general health was better than it had been before in many years. He was directed to employ a weak infusion of witch-hazel or golden seal, and to wash the eyes once a day with Dr. Sage's Catarrh Remedy, also to continue the use of the Discovery. A perfect cure was the result.

1387. **Case II.** Nancy T., aged 34, came to the World's Dispensary in 1873 to be treated for granular conjunctivitis. She being of a scrofulous diathesis, the constitutional treatment directed for scrofula in ¶ 812 was adopted, and stimulating astringent applications were made to the eyelids every third day. For some time the disease resisted this local treatment, but as her general health improved the disease abated. This continued until the cure was perfected. The treatment was continued, however, until the scrofulous manifestations subsided, and the functions of the body were all well established.

INFLAMMATION OF THE CORNEA.

(CORNEITIS. KERATITIS.)

1388. Inflammation of the cornea may be either *acute* or *chronic*, generally the latter. The cornea is commonly involved to some extent during the progress of inflammation of other structures of the eye, but I propose here to speak of uncomplicated corneitis. This affection is usually of long duration, sometimes continuing for months or even years, and is liable to result in ulceration, opacity, abscess, or staphyloma. Sometimes both eyes are involved at the same time, and it frequently happens that when but one is attacked, as that begins to improve the other becomes involved. Young children, and especially persons from ten to twenty years of age, are more liable to it, particularly those of a strumous habit; and also females at the age of puberty. As the disease progresses the whole cornea becomes red and vascular, resembling light-red cloth with a white spot in the centre, a condition that has been termed *pannus*; deposits of lymph also occur between the layers of the cornea, and the vision becomes obscured. The disease is apt to involve the iris, and if unsuspected or neglected, closure of the pupil is liable to occur.

1389. **Causes.** Constitutional derangement predisposes to inflammation of the cornea, as scrofula, syphilis, rheumatism, etc.; while the exciting causes are exposure to cold and wet, overexertion of the eyes, badly-ventilated abodes, insufficient food, injuries, irritating substances, corrosive eye-lotions, etc.

1390. **Symptoms.** There is more or less pain in the eye, neuralgia of the orbit, increase of tears, intolerance of light, which symptoms are very intense in the acute form. The cornea becomes hazy, vascular and red. In the sclerotic coat (§ 135), a belt of minute blood-vessels may be seen surrounding the cornea, which is an important diagnostic mark; in the edge of the cornea, a similar circle, or part of one, may be seen, composed of exceedingly minute vessels, while in the conjunctiva the vessels are large and tortuous.

1391. **Treatment.** As the disease is prone to occur in persons of broken-down constitutions, scrofulous or syphilitic subjects, treatment appropriate to the constitutional condition must be instituted, and the most thorough regulation of the patient's habits must be established. If the patient be plethoric, give a brisk cathartic. Sedatives, as aconite (§ 596), with a diaphoretic, as asclepias (§ 550), will be beneficial, together with the spirit vapor-bath. Generally, all through the course of treatment, tonics, as well as alteratives are demanded, and the spirit vapor or the Turkish or Russian baths should be employed to keep the skin in good condition. We must improve the general health by every proper means, and to this end my Golden Medical Discovery and Pellets are advisable, in doses appropriate to the age of the patient. In some cases the value of the Discovery may be enhanced by the addition of half an ounce of iodide of potassium (§ 468) or muriate of ammonia, to each bottle. This should be alternated with the bitter vegetable tonics, iron, etc. Quinine and iron, in the form of pill or powder, should be used in preference to other tonics.

1392. The eye needs rest, and must be protected from the light; indeed, the lids should not be separated, except for the purpose of making applications to it. The eye may be lightly covered by cloths wet in tepid water. The applications should be of a soothing or slightly stimulating character. Tincture or fluid extract of aconite leaves, one drachm to an ounce of water,

is a valuable lotion to allay the inflammation, and may be dropped into the eye every two or three hours. After the first or more active stage of the disease, a weak solution of nitrate of silver or sulphate of zinc, one grain to the ounce of water; rose-water with ten grains of borax to the ounce; a weak infusion of golden seal, or the infusion of golden seal with a little borax added, are all valuable eye-lotions, suitable to be employed. One or two drops of a solution of atropia, two grains to the ounce, either separate or combined with one of the above mentioned lotions, should not be overlooked. This will obviate the danger of permanent closure of the pupil in consequence of the adhesion of the iris to the cornea, a result quite likely to occur if such precaution be not taken. The disease is one that requires great skill for its successful management, and no non-professional person should attempt its treatment. Indeed, few physicians will be likely to assume its management, unless they are ignorant of the deplorable results (hereafter mentioned) which are liable to follow its improper treatment.

OPACITIES OF THE CORNEA.

1393. Opacities of the cornea result from inflammation of the conjunctiva, or cornea, or in consequence of injuries to the cornea. These opacities, more or less obscure the vision, according to their situation, extent and thickness. They are divided according to their situation in the layers of the cornea, into superficial, central and deep. When they are moderate in size, quite superficial and thin, looking like a faint grayish blue cloud, they are called *nebulæ*; when the opacity is greater, denser, pearly white and situated deeper in the substance of the cornea they are termed *albugo*; when there is a corneal or corneo-conjunctival scar or cicatrix extending deep within the structure of the cornea, resulting from a loss of substance, and its edge well defined, it is termed *leucoma*. The nebulous variety is apt to result from inflammation of the conjunctiva, and is much more easily managed than the other varieties which generally result from inflammation or injuries. Formerly when lotions of sugar of lead were oftener used than at present, these opacities were much more common, as a direct result of the oxidation of the lead and its deposition in, and adhesion to, the coats of the cornea.

1394. **Treatment.** The younger the patient, the more readily will the opacity yield to the treatment. It is sometimes astonishing with what rapidity the part affected is restored in children. The form termed *leucoma* is the most persistent of any, and it may be doubted if medical treatment ever does effect a perfect cure, though time and appropriate medicines may greatly narrow the extent of the opacity. The treatment mostly relied upon at the World's Dispensary consists in enjoining a thorough observance of hygienic regulations and the administration of such internal remedies as the condition of the constitution demands. Prominent among the remedies I prescribe are alteratives and tonics; I also recommend a good and nourishing diet. The absorbents are to be kept continually active by the use of my Golden Medical Discovery. To each bottle add one-half ounce of iodide of potassium. My Purgative Pellets should be used to keep the contents of the bowels in a soluble condition.

Locally, all kinds of stimulating lotions have been employed by experimentalists, and nearly every known irritant has been tried, not even omitting croton-oil and mercurial ointment. To use such agents is unphilosophical and hazardous in the extreme. Pure sweet-oil, or melted lard, are far superior agents. Various ointments are useful, as fifteen grains of powdered borax in an ounce of lard; or five grains of iodide of potassium in an ounce of lard or fresh butter. The cautious application of diluted tincture of cayenne pepper with a camel's hair pencil, is often useful. More powerful irritants than those already advised, should never be used except by a skillful oculist, for, instead of removing the opacity they may cause destructive inflammation. A lotion of one grain of atropia to an ounce of water, applied twice a day, must not be overlooked. When all medicines fail, which is sometimes the case in leucoma, or if chalky deposits take place in the cornea, an operation for providing an artificial pupil, illustrated in Fig. 159, may be skillfully performed, and at once restore the vision.

ULCERATION OF THE CORNEA.

1395. Ulceration of the cornea may be caused by purulent, or scrofulous inflammation, injuries, disease of the nerves which

supply the cornea, great debility of the general system, or by anything that results in defective nutrition of the eye. Corneal ulcers may be superficial or deep-seated, the latter being most troublesome and dangerous, and when located at the centre of the cornea are more liable to interfere with vision than when situated near its circumference. There may be one or several, or one may follow another. They may sometimes be so small as scarcely to be seen, but are nevertheless dangerous. They are generally accompanied with more or less inflammation, which varies according to the character of the ulcer, of which there are several varieties. They may perforate the cornea and thus destroy the vision.

1396. **Symptoms.** There is a sensation as if there were dirt or grains of sand in the eye, accompanied by more or less redness, and straggling conjunctival blood-vessels may be observed running toward the cornea; there is increased secretion of tears and intolerance of light, and a careful examination of the eye will reveal a little depression on the surface of the cornea.

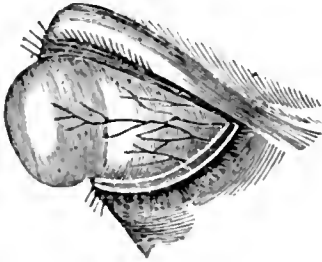
1397. **Treatment.** The treatment of ulcers must always be according to the cause which gave rise to them. Attention to the general health is necessary, as in the majority of cases it is considerably impaired, and the system so much below par that the natural reparative processes cannot go on. Tonics with alteratives are required, also good diet and rest are necessary. Give the Golden Medical Discovery, in medium doses, with iron and hydrastin. If there be syphilis, employ the treatment suggested under that head. If inflammation exists it must be overcome. Apply, locally, an astringent lotion, as the infusion of gold thread (§ 616), or the golden seal and witch-hazel decoction already alluded to; or ten grains of borax in an ounce of infusion of golden seal, or one grain of nitrate of silver in an ounce of rose-water. If the disease does not promptly yield, a competent oculist should be consulted.

STAPHYLOMA.

1398. Staphyloma is an affection of the eyeball and is characterized by the protuberance of the cornea which loses its transparency and becomes a bluish white, or pearl color, Fig.

158. The sclerotic coat (§ 135) is also sometimes involved. In some cases the pain is intense, in others slight.

Fig. 158.



Staphyloma.

1399. Staphyloma may be partial or total. In the first case the projection is comparatively slight, in the second it is very large, frequently rough and uneven and the sight wholly destroyed.

1400. **Causes.** Ulcers, injuries, abscesses and sloughing may all be causes of this affection.

1401. **Treatment.** The treatment must necessarily be chiefly *local* and consists in a removal of the tumor. If the affection be partial, the operation should be performed as early as possible, for the purpose of arresting its progress and thus preserving the remaining sight. If it be total, the unsightly, morbid growth should be removed, or the sound eye will be quite liable to become sympathetically diseased. Numerous cases have come to my notice in which staphyloma of *one* eye, through sympathy has produced inflammation in the other, and when the tumor, from the diseased eye was removed, the other was restored.

1402. If staphyloma be accompanied by some constitutional affection, those remedies should be employed which are suited to each individual case.

INFLAMMATION OF THE IRIS.* (IRITIS.)

1403. This affection, also known as *Internal Ophthalmia*, may be considered under two forms, viz., *acute* and *chronic*.

1404. The *acute* form does not occur so frequently as the chronic, is more rapid in its course, and when improperly treated, often results in other diseases of the eye, or the chronic form of this affection.

1405. **Symptoms.** There is at first dimness of vision, and the color of the eye is changed: if naturally hazel, it becomes a dark red; if blue or gray, it is changed to a greenish color. The lining membrane of the eyeball and lids has a pinkish appearance. There is a burning, stinging pain, a profusion

* For anatomy of the iris, see § 135.

of tears, and it is with the greatest difficulty that the patient can open his eye. The pain is paroxysmal, and generally occurs in the night-time. This affection is usually attended with considerable fever, the tongue is coated, the skin dry, the pulse quick and hard, the bowels are constipated, there is headache, thirst, restlessness, and, as the disease progresses, the eye has a hazy appearance.

1406. **Causes.** It may be produced by wounds or injuries of any kind, and is then termed traumatic, or it may be the result of cold, or improper use of the eye, when it is known as *rheumatic* inflammation.

1407. **Treatment.** An emetic should be taken, after which a spirit vapor-bath may be used. As a revulsive measure a hot mustard foot-bath is recommended. Small doses of my Compound Extract of Smart-Weed, in some diaphoretic infusion, should also be given. To keep the bowels regular, an active cathartic should be administered as often as the case requires. The circulation may be controlled by veratrum (§ 597). If, however, the patient be debilitated or anæmic, this treatment should be materially modified. As soon as there is a remission of the symptoms, two or three grains of quinine, with one of my Purgative Pellets, should be given every three or four hours. My Golden Medical Discovery, taken internally, will, by its alterative properties, favor the absorption of any lymph that may have been deposited in the eye during the progress of the inflammation.

1408. If the disease be of the rheumatic form, in addition to the above treatment an alkaline diuretic, as acetate of potash (§ 569), or saltpetre (§ 568), is advised. If the pain be very severe, some anodyne, as hyoscyamus (§ 481), may be used.

1409. The eye should be excluded from the light, and frequently bathed with warm soft water. A solution made from two grains of atropia (§ 483) and one ounce of water, dropped into the eye two or three times a day, is of great benefit. A lotion of the tincture of aconite leaves may also be used several times a day. Should the above treatment fail in effecting a cure, a skillful physician should at once be called.

1410. *Chronic inflammation* of the iris more frequently occurs than the acute form, and may be severe at first, or its

approach may be so gradual that it is unnoticed until indistinctness of vision indicates the diseased condition of the eye.

1411. **Symptoms.** These are essentially the same as in the acute form, although much milder in character. There is a dull pain in the eye, attended with a sensation of weakness. The pupil is smaller than natural and contracts and dilates slowly. The brightness of the eye is faded, and a belt of blood-vessels may be seen around the cornea; the vision gradually becomes indistinct and is finally entirely lost.

1412. **Causes.** It may be the result of the acute form, or of prolonged inflammation of some other part of the eye. It may also be caused by other diseases. *Scrofula* frequently induces this inflammation, in which case yellowish spots occasioned by the effusion of lymph may be seen here and there upon the iris, and the cornea is sometimes mottled and opaque. It may also follow from venereal disease, when it is known as *syphilitic* inflammation of the iris, a representation of which may be seen in Fig. 31, Colored Plate No. V.

1413. **Treatment.** In this form the treatment must be energetic. Hygienic conditions should be observed, and every third or fourth day a spirit vapor-bath should be employed. My Pleasant Purgative Pellets, alternated with tonics, as iron (§618), quinine (§496), hydrastin (§613), dogwood (§611), or nux vomica (§612), should be taken in sufficient doses to keep the bowels regular. Warm poultices should never be applied to the eye, since they favor suppuration and are liable to destroy the sight. The atropia lotion, advised in the treatment of the acute form, should be used in this. The local treatment for the *scrofulous* form should be similar, but the constitutional treatment must be adapted to the condition of the system. The same is true of the *syphilitic* form. A green shade for the eyes will be of service. Other parts of the eye are liable to be implicated in this inflammation, hence the ophthalmoscope should be employed to detect the first approach of disease.

CASES TREATED.

1414. **Case I.** In 1872, Richard P., of Canada, aged 29, applied at the World's Dispensary for the relief of chronic iritis. He had suffered about three months, and his general health was

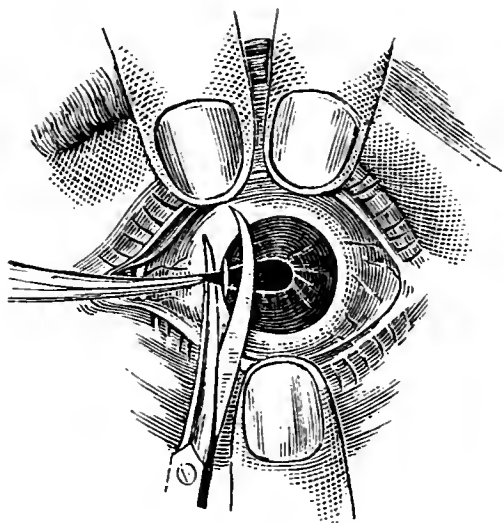
considerably deranged. The iris was contracted, of a muddy color, and effusions of lymph were visible upon it. I advised a nourishing diet, gave him alteratives and tonics suited to his case, made local applications to produce dilation of the pupil and allay the inflammation, and protected the eye from the light with a green shade. In two months his general health was much improved, the lymph absorbed, and aside from his eye being a little weak (which sensation was finally removed by an infusion of hydrastin and the use of the Discovery), he was fully restored.

1415. **Case II.** In 1874, George B., aged 20, consulted me for the treatment of iritis, which was rapidly progressing. The iris was of a muddy color, and a peculiar angular deformity existed. I learned upon inquiry that about eight months previous he contracted syphilis and had been treated with mercury and iodine for that disease, but without benefit. I at once commenced treatment for constitutional syphilis. Atropia was applied locally, together with fomentations. At the end of a month there was a decided improvement, and in two months all traces of iritis had vanished, and after further treatment for syphilis, he was completely restored to health.

CLOSURE OF THE PUPIL. (ATRESIA PUPILLARIS.)

1416. Closure of the pupil is characterized by a total loss of sight, and is the result of inflammation of the iris.

Fig. 159.



Iridectomy.

1417. **Treatment.** If there be any constitutional derangement, it should be rectified by remedies suited to the case. In this disease solutions and lotions applied to the eye are of no benefit, and surgery promises the only relief. If the disease does not extend behind the iris, the surgical operation termed *iridectomy* (Fig. 159) will speedily restore the sight. It is need-

less to add that such a delicate operation requires a perfect

knowledge of the anatomy of the eye, as well as familiarity with the proper instruments with which to perform it. The Eye Department of the World's Dispensary is furnished with all the surgical instruments required for operations upon the eye, and at its head is a competent surgeon prepared to skillfully treat this class of diseases.

GLAUCOMA.

1418. From the earliest history of medicine great differences of opinion have prevailed with regard to the pathology of this disease. Formerly the term glaucoma was indiscriminately applied to all diseases affecting that part of the eye behind the pupil. Some regarded it as an inflammatory affection of the iris and choroid (§135), others thought that it was a disease of the retina, or vitreous humor, while others again claimed it to be due to some change in the refracting power of the lens. Not until the invention of the ophthalmoscope was the real nature of the disease understood. Mackenzie remarks, "Glaucoma comprehends a series of morbid changes, which in general develops itself only in the course of years, to involve, at last, all the structures of the eye." The disease may be either *acute* or *chronic*. If the acute form be present it progresses rapidly and generally affects both eyes at the same time. The chronic form is most frequent and years may elapse before the structures become so involved as to destroy the sight.

1419. **Symptoms.** The eye presents a greenish appearance, varying from a slight discoloration to a light green color. In the acute form, the symptoms sometimes appear very rapidly, and the vision becomes extinct after a few hours of terrible pain. At other times the disease is gradually developed. There is a sensation as if sparks, flames, balls of fire, or bright colors, were passing before the eyes. The conjunctiva becomes red and the pupil dilated. Pains shoot from the eyes to the forehead and temples, the iris becomes dull, the eyeballs harden, the cornea is less prominent, water flows from the eyes, there is dimness of vision, and, finally, the sight is altogether lost.

In the chronic form, there is pain and dimness of vision, which occur at intervals, becoming more and more frequent, until these symptoms are continually present. Nearly all the symptoms of the acute form are present in this, and may continue for months,

and sometimes years, the sight gradually becoming impaired, until it is finally lost.

1420. **Treatment.** In the *acute* form, anodynes should be given, to relieve the pain. The bowels, skin and kidneys, should be kept in a healthy condition. The eyes must be kept in a state of rest, and a solution of atropia applied to them once or twice a day. On account of the rapidity with which this disease progresses, a skillful physician should at once be called.

In the *chronic* form, the general health must be improved. Hygienic treatment should be observed, together with the use of alteratives and tonics. My Golden Medical Discovery should be taken in large doses. If the pain be severe, anodynes should be employed. The spirit vapor-bath once or twice a week is also beneficial. In both the acute and chronic forms, a surgical operation is necessary, and should be performed as early as possible, before the sight is completely destroyed. If the operation be delayed until disorganization of the eye has taken place, treatment is liable to prove useless; whereas if it be performed in the earlier stages, the disease may be arrested and the sight preserved. Iridectomy is the operation usually adopted at the World's Dispensary (see Fig. 159), and is the one advised by Von Graefe, a celebrated German oculist, who has given the subject much attention. It is also recommended by other eminent oculists.

AMAUROSIS. (IMPAIRED VISION.)

1421. The term amaurosis signifies a loss or decay of sight. This impairment of vision is due to some change in the retina, optic nerve, or brain, and may be either partial or complete, functional or organic. There may be said to be three stages of this affection: (1.) The eyes are weak, with but little diminution of sight; (2.) The loss of sight is more marked; (3.) The sight is entirely lost.

1422. **Causes.** Various causes favor the establishment of amaurosis. It is common to the young as well as the old, and most frequently occurs in those of a nervous temperament. It may be due to congestion of the retina, exposure to intense light, excessive use of the eyes, assiduously applying them to the lens or microscope, or the use of improperly adjusted glasses. It may

be the result of an exhausted condition of the nervous system, of excessive study, hemorrhages, venereal excesses, masturbation, spermatorrhœa, exhaustive diarrhœa, intemperance, cholera, fevers, hysteria, convulsions, sunstroke, derangement of the stomach, suppression of habitual discharges, use of tobacco, etc.

1423. **Symptoms.** The eye is at first weak, which indicates that it must be shaded; it is red and painful, the pupil is dilated and does not readily contract, and there is a mist or blur continually before it. The sight becomes impaired, and there is a sensation as if minute objects were continually passing before the eyes, and one color cannot be distinguished from another. The gait becomes uncertain, and the patient gropes his way along as if in the dark. As the disease progresses the vision becomes more and more impaired, and total blindness is the final result.

1424. Amaurosis is apt to be confounded with glaucoma or cataract. It may be distinguished from glaucoma, which is characterized by hardness of the eyeball and green color of the eye. In amaurosis the pupil is of its natural color, whereas in cataract,

Fig. 160.



Employment of the Ophthalmoscope.

an opaque body appears behind it. To the person affected with amaurosis objects appear discolored or perverted in shape, and seem to float before the eye; in cataract the vision is clouded but

objects do not float before the sight. If amaurosis be complete, the patient cannot distinguish between light and darkness, while in cataract he is sensible to both. By the ophthalmoscope, as represented in Fig. 160, amaurosis may be distinguished from other affections of the interior of the eye. This instrument is of inestimable value to the specialist in determining the nature of the disease, for by understanding the conditions which are made apparent, the treatment is much more direct and certain.

1425. **Treatment.** In amaurosis, the causes of the affection should be well understood, since only constitutional treatment can be advised. If the disease be *inflammatory*, or the patient be *plethoric* and has headache, giddiness, red face, hot skin, full, quick pulse, apparent flashes of light, or balls of fire passing before the eyes, the treatment must be vigorous. The spirit vapor-bath and hot mustard foot-bath should be given daily. Aconite and belladonna, together with my Extract of Smart-Weed, should be taken in suitable doses, and some purgative, as Epsom salts (§ 541). As soon as there is a remission of the symptoms, my Golden Medical Discovery and Purgative Pellets may be taken.

1426. If amaurosis be caused by an enfeebled condition of the *nervous system*, and there is general debility, quick pulse and anæmia, then tonics and nervines are indicated, together with a nourishing diet and other hygienic agencies. Small doses of my Purgative Pellets, to keep the bowels regular, may also be given.

If the blindness be *sympathetic* and result from some other disease, the general system must be toned, and treatment be given according to the nature of the affection.

If the affection be organic, tonics, nervines and other agents are advised to suit the case; my Golden Medical Discovery and Purgative Pellets are generally found useful in nearly all forms of amaurosis. This disease is often improperly treated, on account of the causes which produce it and the conditions which favor it, not being understood. I have restored hundreds in a short time by carefully diagnosing each case, and varying the treatment so as to adapt it to the condition and constitution of the different patients, and also to the causes in which the affection had its origin.

CATARACT.

1427. The term cataract, when applied to the eye, signifies an opacity of the crystalline lens, (§ 135), or its capsule, or both; the passage of the rays of light is thereby prevented and vision precluded. When the opacity is confined to the lens it is termed *lenticular*; when to the capsule it is called *capsular*; when to both the lens and capsule it is known as *capsulo-lenticular* opacity. Cataracts may be divided into *hard* and *soft*, and may occur at any age and involve one or both eyes. It makes its appearance gradually; at first objects are indistinctly seen, as through a mist, and the vision becomes more and more indistinct as the opacity increases, until the person becomes entirely blind.

1428. **Causes.** The true cause of this disease is yet a subject of discussion among ophthalmologists. Persons of feeble or broken-down constitutions are most subject to it, doubtless owing to the impairment of the nutritive functions.

1429. **Symptoms.** The affection is painless; there is no intolerance of light or flow of tears, and were it not for the gradual loss of sight, the patient would not be aware of the disease. There is at first dimness of vision, and a mist or cloud appears before the eyes. This condition is more marked in a bright day, and objects can be seen more distinctly if placed at one side than if directly in front of the eye. Upon examination an opaque body is observed *behind the pupil*. The pupil itself is natural in appearance and dilates or contracts readily when exposed to the light.

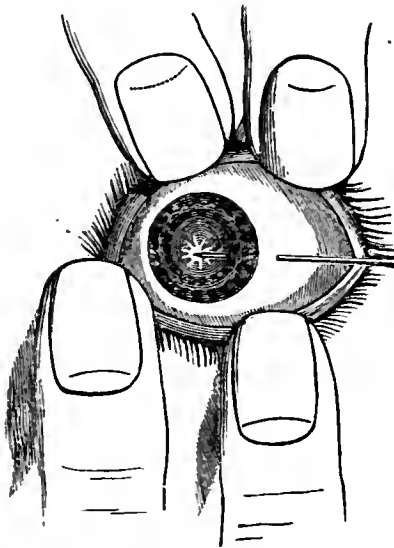
1430. Cataract may readily be distinguished from opacities of the cornea by remembering that, in the latter affection, the opacities are in *front of the pupil*, while in cataract they are behind it. It is sometimes confounded with glaucoma and amaurosis, but can readily be distinguished from those diseases, for in cataract the sight is best in cloudy weather, or in a subdued light; there is no pain in the eye or head, nor is there any constitutional disturbance; the sight is seldom entirely obliterated, but the patient can distinguish between daylight and darkness, and the eyeball preserves its natural consistence.

1431. **Treatment.** Until very recently surgical treatment was regarded as the only means by which cataract could be

relieved. Eminent oculists now entertain the idea that in some cases medical treatment is beneficial. Dr. King says: "There are three conditions presented to the practitioner, viz: first, the cataract may be just commencing; second, it may be almost complete or fully matured without serious complications; or, third, the cataract may be complete or incomplete with serious complications." In the first condition medical treatment may be successful and should consist of a thorough alterative course. My Golden Medical Discovery with iodide of potassium or the muriate of ammonia, are recommended. In the second and third conditions relief can only be expected by a surgical operation.

1432. The methods of operating may be classified under three general heads, viz: *Division or Absorption, Depression or Displacement*, and *Extraction*. By the first method, a needle is

Fig. 161.



Operation for Cataract, by Division.

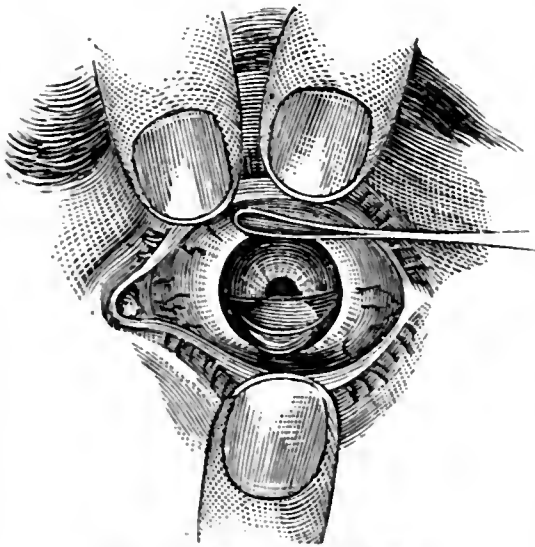
passed through the sclerotic (see Fig. 161) and the opaque lens, and its capsule broken into fragments, which by dextrous manipulations are pushed forward into the anterior chamber of the eye (§ 135), where they are acted upon by the aqueous humor, and dissolved. The pupil, in the figure, appears fully dilated and larger than the cataract, which occupies the centre and is represented by the white spot. This operation is most successful in *soft* cataract, and is accompanied with but little escape of the aqueous humor.

1433. By the second method, the needle is passed through the coats of the eye, pushed carefully forward in front of the cataract (the pupil having previously been dilated), and applied to the upper and front part of the lens. It is then pressed downward and backward into the vitreous humor. The needle is retained for a few moments in the eye, until it is ascertained if the lens is disposed to rise; if so, it is again depressed; if not, the needle is withdrawn. This operation is not very successful, as it is liable to be followed by inflammation.

1434. By the third method—extraction—the lens is entirely removed. This operation is more delicate than either of the others, and it is also more successful. There are various ways of performing this operation. The one known as the *linear* method of extraction is accomplished by making an incision through the cornea, near the sclerotic, on the outer side of the eye; upon withdrawing the knife, the aqueous humor escapes. A curved needle is now introduced, and the capsule cut, when the lens readily escapes by pressure upon the opposite side of the eye. It is a prevalent opinion that any escape of the aqueous humor will result in loss of vision. This impression is erroneous, for in many operations upon the eye, this fluid is permitted to escape. Whenever the aqueous humor is evacuated, it is again produced in from twenty to thirty hours.

1435. By the *flap* operation of extraction, as shown in Fig. 162,

Fig. 162.



Flap operation for Cataract.

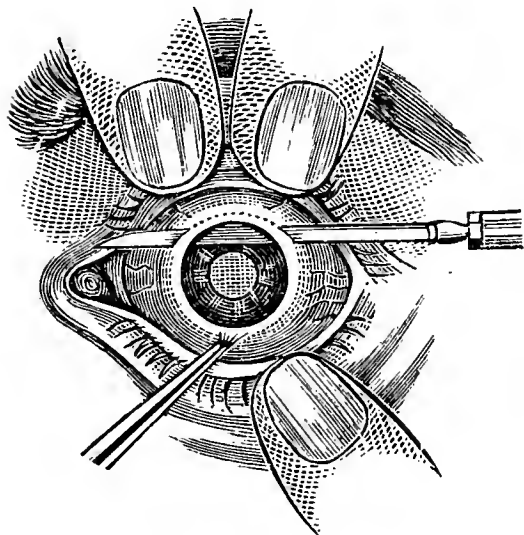
and made by what is termed the “lower section,”—an incision is made in the cornea near the sclerotic, as represented in the figure, and the cornea is divided. The capsule is then cut and the lens allowed to escape. In the figure the lens is represented as escaping from the incision made in the cornea. After the operation is completed the eyes are kept closed by strips of adhesive plaster, which should be removed

every day to ascertain the condition of the eye. The patient should be kept in a darkened room and in a recumbent position, for some time, and care be taken that he does not disturb the eye during sleep. The wound in the cornea speedily heals by what is known as *first intention*.

1436. The *modified linear* method of extraction, represented by Fig. 163, is a modification of both the linear and flap operations, and may be divided into (1) incision, (2) iridectomy, (3) opening the capsule, and (4) extraction of the lens. In Fig. 163, the

eye is represented as transfixed with a knife and held by fixation forceps. The knife is then moved upward, following the sclerotic until a complete flap is cut; iridectomy is then performed,

Fig. 163.



Modified linear method of Extraction.

every attention after the operation until the cure is complete, and he can with safety return to his home.

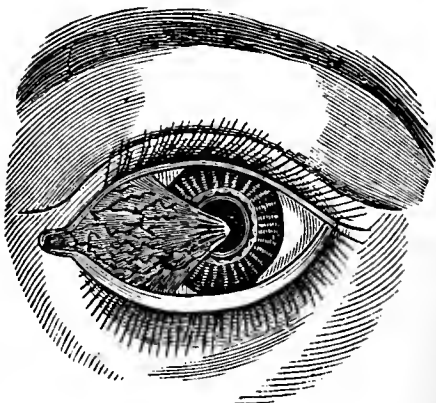
the capsule opened and the lens extracted in a manner similar to the preceding operation.

1437. After any operation for cataract has been performed, the patient should have the best of care, for through ignorance, carelessness or neglect, serious consequences may ensue. To meet this necessity I have made suitable provision whereby every patient upon whom I operate shall have

PTERYGIUM.

1438. The word Pterygium—from its Greek derivation signifying a wing—is applied to a disease of the eye. The affection is characterized by a vascular thickening of a portion of the conjunctiva which is triangular in shape and bears a resemblance to the wing of an insect. This thickened membrane usually occupies the nasal side of the eye, its base being situated at the inner corner and its apex directed to the cornea, thereby obstructing the sight, as illustrated by Fig. 164. Sometimes one of these membranes is formed on the inner and one on the outer side simultaneously, in which case they may entirely cover the cornea. In the early period of the disease this membrane is

Fig. 164.



Pterygium.

thin and light-colored and causes but little if any disfigurement, but later it becomes inflamed and eventually destroys the sight.

1439. **Causes.** These are obscure, but inflammation or continued irritation favors the production of this disease; it most frequently occurs in warm climates.

1440. **Treatment.** The absorbents should be kept active by the use of my Golden Medical Discovery and Purgative Pellets, which for this purpose are unequalled. Local applications may be employed, but with great care. Caustics or the tincture of capsicum may be applied to the pterygium, but they are very painful, and unless used with caution will be productive of much harm. A solution made from three grains of sulphate of copper and one ounce of water, may be applied two or three times a day. If the growth be large, or if the means above advised fail, it should be removed by a surgical operation. Both medical and surgical treatment are employed at the World's Dispensary, according to the nature of the case, the latter only being resorted to when the former fails to perfect a cure.

FOREIGN BODIES IN THE EYE.

1441. The eye is liable to injury from the introduction of foreign bodies, which occasion suffering and inflammation, if allowed to remain. These substances may be cinders, glass, scales of iron, particles of sand, bits of wood, lime or mortar, gunpowder, and sometimes pieces of percussion-caps, insects, etc. When very small, they may be washed away by tears, but they are liable to become imbedded in the structures of the eye, or lodged in the conjunctiva, where they remain until they produce congestion or inflammation, which is very much intensified by rubbing the irritated organ.

1442. **Treatment.** This consists in removing the particles from the eye. Let the patient be placed in a good light, and his lids drawn apart by a person standing behind him; if the eye be then rolled in every direction, the particles may generally be seen, and removed with a pointed instrument. If the substance be lodged beneath the upper lid, by turning the lid outward it may be removed by a pencil or probe. If the substance be lodged directly in front of the pupil, especially if the eye be black, it is very liable to be overlooked, but it may usually be

discovered by looking across the eye, and is best removed by the point of a lancet. If the substance has passed beneath the layers of the cornea, it may be removed by making an incision, and lifting it out with a pointed instrument. A magnet is often efficient in extracting bits of iron from the eye. Lime should be removed as quickly as possible, and the eye syringed with a weak solution of tepid water and vinegar. Glycerine or pure water may be used, if vinegar is not at hand. If the foreign substance be acid, the neutralizing agent should be alkaline, and a solution of salætatus or soda is generally beneficial. Pitch is best removed with oil. If there be gunpowder in the eye, it should be picked out as soon as possible, or the nitre will dissolve and give rise to extreme pain, inflammation and discoloration of the eye. Pieces of percussion-caps should be removed as quickly as possible by a surgeon. After any substance has been removed, the eye should be bathed with tepid water, milk and water, or rose-water, or a weak decoction of tea, after which the eye should be protected from the light.

CROSS-EYE. (STRABISMUS.)

1443. This is an affection in which the axes of the eyes cannot be directed the same way and therefore when one eye is turned toward, the other is turned away from the object. Strabismus may be divided into *convergent*, when the eye is turned toward the nose, *divergent*, when turned away from the nose and *oblique* when it is directed obliquely upward or downward.

1444. **Causes.** This affection may be congenital, but it is frequently induced by some disease of childhood, as whooping-cough, measles, worms, etc., or by irritation of the stomach, constipation, fright, or passion. It may be produced by an enfeebled condition of the nervous system, diseases of the brain, opacity of the cornea, by using one eye to the entire exclusion of the other, or by sportively attempting to imitate cross-eyed people.

1445. Although it is easy to detect this affliction in a person, it is not always easy to determine which eye is turned. "In order to ascertain which is the squinting eye, the patient should be directed to look steadily at an object (a lighted candle or uplifted finger), held in the horizontal median line, at the

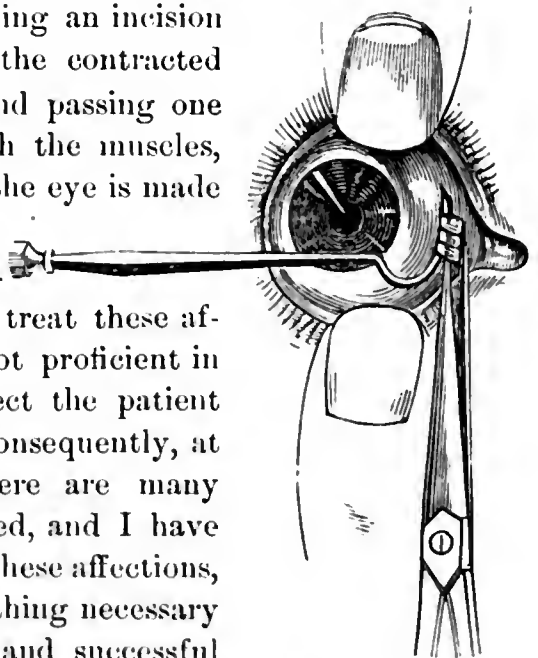
distance of a few feet from the face. Then alternately covering each eye with the hand, note whether the uncovered eye remains steadily fixed upon the object or has to change its position before it can bring its visual line to bear upon it."—WELLS. There are various other methods employed to discover which is the affected eye.

1446. **Treatment.** If strabismus be produced by disease of the brain, such remedies must be employed as will benefit that affection. If due to an enfeebled condition of the nervous system, tonics, alteratives and nervines should be employed. If to convulsions, antispasmodics (§ 507) and nervines (§ 589) are indicated. Some exercise of the crooked eye may be beneficial; for example, shut the well eye and, keeping the head in one position, let the affected member be directed toward a glass and then suddenly open the other. The repetition of this experiment has sometimes been serviceable in restoring the affected eye.

When other means fail, a surgical operation will completely obviate the difficulty. The operation may be performed quickly, and with very little pain. Fig. 165 represents an operation performed on *convergent* cross-eye. It consists in making an incision in the sclerotic, and raising the contracted muscles with a blunt hook, and passing one blade of the seissors beneath the muscles, which are then divided, and the eye is made straight.

Physicians in ordinary practice seldom have occasion to treat these affections, and are therefore not proficient in operating and generally direct the patient to some skillful surgeon. Consequently, at the World's Dispensary there are many cases of this character treated, and I have devoted especial attention to these affections, and am provided with every thing necessary to effect the most approved and successful operations.

Fig. 165.



Operation for Cross-Eye.

OBSTRUCTION OF THE LACHRYMO-NASAL TUBE, OR TEAR-DUCT.

1447. The lachrymo-nasal tube—the passage which conveys tears from the eye to the nose—is liable to be obstructed, and hence the tears, deprived of their usual exit, flow outward over the cheek. The person is then said to have *watery eyes*. If the passage be entirely closed, the amount of tears will be greater than if only partially obstructed, and the nostril on the affected side will be correspondingly dry. If the duct be obstructed below the lachrymal sac, the tears will accumulate and produce swelling, inflammation or abscess.

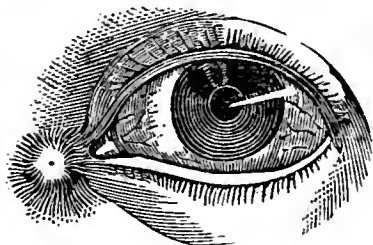
1448. **Causes.** The obstruction may be due to inflammation of the lachrymal sac or adjacent structures, and most frequently occurs in persons of a scrofulous diathesis. It may be caused by nasal catarrh, which produces a thickening of the mucous membrane lining the duct. Again, the tears may not enter the sac, in consequence of the small canals which convey them from the lids to the lachrymo-nasal tube being obstructed.

1449. **Treatment.** If the affection be the result of scrofula, corresponding constitutional treatment is advised, if due to catarrh, the use of my Golden Medical Discovery, together with Dr. Sage's Catarrh Remedy, applied with the Nasal Douche, is recommended; if to obliteration of the *canaliculi* (little canals), a surgical operation is necessary. If there be stricture of the duct, a probe should be passed through it into the nasal cavity, and the operation repeated by changing from a small to a large instrument.

LACHRYMAL FISTULA.

1450. Whenever there is continued inflammation of the lachrymal sac, it produces an abscess or fistula which discharges its contents upon the cheek through the skin, a little below the inner corner of the eye. A representation of lachrymal fistula may be seen in Fig. 166.

Fig. 166.



Lachrymal Fistula.

rymal sac, it produces an abscess or fistula which discharges its contents upon the cheek through the skin, a little below the inner corner of the eye. A representation of lachrymal fistula may be seen in Fig. 166.

1451. **Treatment.** This consists in removing the obstructions of the duct by passing through it a long slim knife and keeping the

passage open by the frequent introduction of probes, or by the insertion of a little silver instrument called a *style*, which is worn in the passage until all danger of its contracting and closing again is passed.

INFLAMMATION OF THE LIDS. (OPHTHALMIA TARSI.)

1452. Inflammation chiefly affects the edges of the eyelids, although it may extend to the conjunctiva. It is generally chronic and is liable to cause more or less disfigurement.

1453. **Causes.** It may be caused by exposure to the atmosphere, dirt, irritating vapors, inflammation of the eye, uncleanness, etc., or it may be due to catarrhal or purulent conjunctivitis, intemperance, unwholesome food, excessive use of the eyes by artificial light. It is most frequent in persons of a feeble constitution or scrofulous diathesis; soldiers, farmers and travelers are also subject to this affection.

1454. **Symptoms.** The edges of the eyelids are red, swollen and covered with a secretion from the glands of the lids; there is an itching, burning sensation, and they adhere to each other in the morning. If produced by scrofula, the incrustations or scales are thick, and small pustules or ulcers are formed at the roots of the eyelashes. If the inflammation be long continued the eyelids become thickened, the eyelashes fall out, the eyes are irritated and their appearance is unsightly.

1455. **Treatment.** The constitutional derangements must first be corrected by hygienic observances, and if tonics be necessary, my Golden Medical Discovery is advised. The eyes should frequently be bathed with milk and water, or a weak infusion of golden seal, or a lotion made from one or two grains of white vitriol (§ 504) and one ounce of rose-water. Glycerine, either pure or medicated, may be applied at night to keep the surface moist. After thoroughly cleansing the eyelids, a preparation made from fifteen grains of borax, one-half ounce rose-water, and one-half ounce glycerine, may be applied and will produce good results.

STYE. (HORDEOLUM.)

1456. This affection is characterized by a red, hard swelling on the edge of the lid and is attended with considerable pain

and inflammation. It is of the same nature as a boil and when it bursts, thick matter is discharged and a small part sloughs off, after which the swelling subsides and the lid heals. The treatment is the same as that for boils (§ 874).

TUMORS OF THE LIDS.

1457. Tumors frequently form upon the lids. These may be removed by the knife. Careful discrimination, however, should be made between simple and cancerous tumors.

EXCRESCENCES OF THE LIDS.

1458. These have essentially the appearance of warts and may be removed from the lids by the use of caustics or the knife. The same precaution advised in the preceding affection applies equally well to this, viz: to distinguish between simple excrescences and those of a cancerous nature.

WILD HAIRS. (TRICHIASIS.)

1459. Wild hairs or ingrowing of the lashes is of frequent occurrence. The lashes grow in toward the eye and produce irritation and inflammation of that organ.

1460. **Treatment.** When but a small part of the eyelid is thus affected pulling out the lashes with a pair of tweezers may suffice, but they will grow in a similar manner again. When the eye is endangered by the irritation which the lashes produce, the treatment should be radical and relief may be effected by destroying the hair-bulbs in the margin of the lid. This may be done by the use of caustics, care being taken to protect the eye by an investment made for that purpose; or a surgical operation upon the lid will remove the affection.

EVERSION OF THE LIDS. (ECTROPIUM.)

1461. This disease is characterized by the lid being drawn away from the eyeball which, deprived of its natural protection, is subject to irritation and inflammation with frequent ulceration of the cornea.

1462. **Causes.** It generally results from the contraction of parts which have been wounded and are beginning to heal, as in burns, scalds or cuts. It may be caused by paralysis of the

muscle which surrounds the eye. Not long since I had occasion to operate upon a case in which eversion of the lids was caused by contraction of a wound in healing. A distinguished surgeon of New York had removed a tumor from the cheek of the patient, and in healing, the skin had contracted so much as to result in eversion of the lower lid.

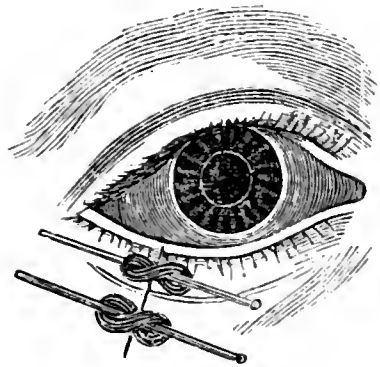
1463. **Treatment.** If paralysis be the cause of this affection, appropriate constitutional treatment is advised. If caused by contraction of wounds or burns, a surgical operation is the only remedy. The operation consists in removing a part of the tissue, as shown by the black lines in Fig. 167, which represents the incisions as made in operating, and bringing the edges of the

Fig. 167.



Entropium before Operation.

Fig. 168.



Entropium immediately after operation, with the Sutures in position.

wound together, and holding them in position by means of pins and silk thread, applied as represented in Fig. 168. If too little of the superabundant tissue be removed, the operation will only partially relieve the difficulty. If, on the other hand, too much be taken away, *inversion of the lids* will result. When properly performed, the operation is successful, and leaves little or no disfiguration.

INVERSION OF THE LIDS. (ENTROPION.)

1464. This disease of the eyelid is exactly the reverse of the preceding; the edge of the lid and the lashes are turned toward the eye. If this condition be continued, the result will be inflammation, caused by the irritation of the eyelashes, as described under *Wild Hairs*.

1465. **Causes.** It may be caused by inflammation or thickening of the conjunctiva, or from flaccidity of the adjacent tissue.

1466. **Treatment.** Astringents, or nitric acid may be applied to produce contraction of the skin. If, however, these do not afford relief, a surgical operation should at once be performed, since prolonged irritation is dangerous to the eye. A portion of the lid should be removed, while the margin remains uncut, and the edges of the wound brought together to heal.

ADHESION OF THE LIDS.

1467. Adhesion may be of two kinds, viz: (1.) Where the margins of the lid adhere, and the globe of the eye remains free, which is caused by burns, wounds, ulcerations, and sometimes inflammation. (2.) Where the conjunctiva—surface of the eye—and one or both lids adhere. This deformity is sometimes congenital.

1468. **Treatment.** In either case, the treatment is surgical, and consists in separating the adhesions by means of a knife, and applying ligatures. Care must be taken lest the structures of the eye be wounded.

DISEASES OF THE EAR.

1469. The ear is liable to maladies which occasion severe suffering and oftentimes result in structural lesions and total deafness.

EARACHE. (OTALGIA.)

1470. Earache is of frequent occurrence, especially among children. Sometimes the pain is *neuralgic*, again it is *inflammatory*, and is increased by a recumbent posture.

1471. **Causes.** Exposure to cold, inflammation of any portion of the auditory canal, rheumatism or disorders of the digestive apparatus are among the most prominent. Earache frequently occurs during the progress of measles or scarlet fever and is incident to feeble or scrofulous constitutions. When it has once occurred it is quite liable to return, even when no cause can be assigned therefor.

1472. **Symptoms.** When the pain is *neuralgic*, it usually

begins at night, is severe, lancinating and darting, but remits toward morning and the patient may be comparatively free from it during the day. If the pain result from inflammation it comes on gradually and does not entirely disappear until the cause is arrested. It is attended with noises in the ear, as singing, buzzing, roaring, etc., and an examination reveals the auditory canal red, swollen and inflamed, or entirely obstructed. The pulse is quick, the tongue coated, the skin dry and hot and general symptoms of fever appear.

1473: **Treatment.** When constitutional derangement exists, remedies should be administered appropriate to the disease. When earache is a sequence of measles or scarlet fever, alteratives are recommended. If the pain be *neuralgic*, quinine and nux vomica, alternated with belladonna may be given, after which my Golden Medical Discovery and Purgative Pellets will be found beneficial. If the pain be indicative of inflammation, a spirit vapor-bath should be administered, the ear carefully steamed and my Compound Extract of Smart-Weed in some diaphoretic infusion taken in suitable doses. Aconite and belladonna may also be used, and as soon as the inflammation begins to abate, alteratives are indicated. The above treatment may not give immediate relief, but is designed to effect a permanent cure.

1474. Palliative treatment or that which will give present relief is desirable and may be obtained from simple household remedies, such as sweet-oil, camphor and oil, glycerine, a roasted onion or a toasted biscuit moistened in hot vinegar and applied to the ear. A little tuft of cotton or wool, saturated in a mixture of two grains of gelsemin and one of morphine dissolved in a drachm of glycerine and placed in the ear will rarely fail to give relief.

PURULENT DISCHARGE FROM THE EAR.

(OTORRHOEA.)

1475. This affection, which is of frequent occurrence, is the result of inflammation. The discharge varies in character and quantity. Sometimes it is thin and watery, again it is thick, creamy and of a yellow or greenish color and very offensive.

1476. **Causes.** The external part of the ear may be inflamed and give rise to this discharge, or the tympanum (eardrum) and adjacent parts may become diseased and suppuration follow. It may be occasioned by injuries, exposures to cold and vicissitudes of climate, or it may be induced by scrofula and translation of eruptions of the skin, or polypus of the ear.

1477. **Symptoms.** There is severe earache, headache, and swelling of the glands of the neck, all of which are symp-

Fig. 169.



Examination of the external ear and tympanum by the speculum and mirror.

toms of inflammation. As soon as the discharge takes place the inflammation subsides. The existence of this disease is very readily determined, but there is oftentimes much difficulty experienced in ascertaining its course and to what extent the tissue

has become involved. By means of the speculum and mirror, as illustrated in Fig. 169, the diseased structure can readily be brought to view.

1478. **Treatment.** When the inflammation is acute and the pain severe, a spirit vapor-bath is advised, and the perspiration should be kept up with my Compound Extract of Smart-Weed, and small doses of aconite. When the disease is chronic, or when it results from eruptive fevers, an alterative and tonic course of treatment is recommended, for which my Golden Medical Discovery and Purgative Pellets are unequalled; hydrastis, dogwood and other tonics, may also be given. The ear should be thoroughly syringed two or three times a day with tepid water and Castile soap. My Nasal Douche is preferable to a syringe, since the force of the current may be regulated by elevating and lowering the Douche, or by compressing the flexible tube between the thumb and finger. Dr. Sage's Catarrh Remedy is excellent for cleansing the ear, and promoting restoration of the diseased parts. When the discharge is profuse, mild astringents are frequently beneficial, and may be used with the Douche. If ulcers be visible, nitrate of silver or sulphate of zinc may be applied with a fine brush, but should be used with great care. When morbid growths produce the discharge, they should be removed by a skillful surgeon. If hardened wax be the cause of the discharge, it should be softened, and removed with suitable instruments, after which a warm infusion of hydrastis may be applied with the Douche.

DEAFNESS.

1479. Deafness may arise from *obstruction of the eustachian tube, affections of the tympanum, obstruction of the external ear, or paralysis of the auditory nerves.*

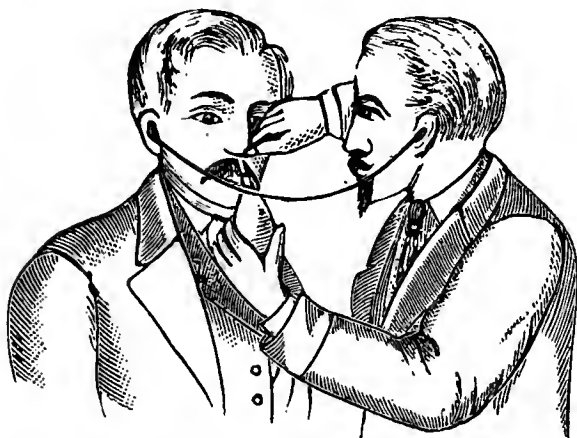
1480. **Obstruction of the Eustachian Tube.** By reference to Fig. 63, it may be seen that the eustachian tube establishes a direct communication between the middle ear and the cavity of the pharynx. It is obvious that any obstruction to this passage will impair the hearing.

1481. **Causes.** These are catarrh, and chronic inflammation of the lining membrane which becomes thickened and fills the cavity of the tube; also enlargement of the tonsils, which, being

in close proximity to the orifice of this canal, encroach upon the passage and necessarily obstruct it.

1482. **Symptoms.** Bubbling, cracking sounds in the ear, and a disagreeable sensation extending from that organ to the throat. In some cases it is difficult to ascertain the character of the sound, and whether or not the noises are produced by air in the eustachian tube. By use of the Otoscope and Politzer's Air-bag, as illustrated by Fig. 170, the aurist can readily hear the sounds and determine their nature.

Fig. 170.



Examination of the Internal Ear and Eustachian Tube, by the Otoscope and Air-bag.

alteratives should also be taken, and my Golden Medical Discovery is advised.

1484. **Affections of the Tympanum** are all liable to result in thickening or perforation, which may terminate in complete destruction of this organ.

1485. **Causes.** These affections are incident to a scrofulous diathesis, and may result from external violence, as blows or injuries of any kind. The tympanum is liable to be ruptured by foreign substances entering the ear, or by concussions of air, as in artillery firing. The perforation is more generally due to inflammation or ulceration, the structure giving way to allow the escape of matter, while thickening is usually occasioned by chronic inflammation of the tympanum.

1486. **Symptoms.** Dullness of hearing, giddiness, hissing, puffing, rattling sounds in the ears. By closing the mouth and nostrils, and attempting to expel the air, it will find exit through

1483. **Treatment.**

If the affection be caused by nasal catarrh or enlargement of the tonsils, the treatment should be similar to that prescribed for these diseases (§ 878). If the thickening of the tube be so far from the opening that the Catarrh Remedy cannot be made to reach the diseased parts, the eustachian catheter may be used. Al-

the ear, if there be perforation of the tympanum and the eustachian tube be unobstructed.

1487. **Treatment.** In a strumous diathesis alteratives should be employed. Local applications, as nitrate of silver, iodine, hydrastin, myricin, sanguinarin, etc., may be used under the direction of a competent aurist. Cleanliness is absolutely necessary. When there is perforation or destruction of the tympanum, the hearing may be greatly improved by the insertion of an artificial one. Thickening of the tympanum may be remedied by alteratives and local applications.

1488. **Obstruction of the External Ear.** Any obstruction of the external ear prevents sounds from coming in contact with the tympanum, and thus produces deafness.

1489. **Causes.** Morbid growths, as tumors or polypi obstructing the passage. Any foreign bodies, as insects, beans, peas, kernels of corn, cherry-stones, slate-pencils, bits of wood, etc., getting into the ear and closing the auditory passage. If from any cause, as narrowness of the canal or neglect, wax remains in the ear, it may harden and completely obstruct the passage, or destroy the tympanum.

1490. **Treatment.** If the obstruction be due to tumors or polypi a surgical operation is necessary for their removal, after which constitutional treatment may be adopted. Insects may generally be removed by putting a few drops of oil or warm water into the ear. When this fails they should be removed with a delicate pair of forceps. When beans, corn, peas and similar substances are lodged in the ear all efforts to withdraw them with such improper instruments as pins, knitting-needles, etc., are useless and quite liable to force them still further into the ear. Sometimes, however, a loop of fine wire is effectual in removing them. Again, by dropping oil or glycerine into the ear and lying on the affected side these foreign substances will sometimes work their way out. If these methods fail a skillful surgeon should at once be consulted. It is a common mistake to manipulate the ear in vain endeavors to remove foreign substances, thereby inducing inflammation. If hardened wax obstructs the passage, warm water, applied with my Nasal Douche, may be used to soften it, after which it may be removed with forceps and a small scoop, and the ear moistened with

glycerine. After the removal of the hardened wax, if the ear should ulcerate or become inflamed, alteratives may be taken and the ear cleansed with Dr. Sage's Catarrh Remedy. A lotion of borax or an infusion of golden seal-root may also be used.

1491. **Dryness of the Ear.** Sometimes this occasions deafness. Little or no wax is secreted and the tympanum is very sensitive and easily ruptured.

1492. **Treatment.** Alteratives will arouse the functions of the glandular system and my Golden Medical Discovery fulfills the indication. Equal parts of glycerine and rose-water should be applied to moisten the dry and sensitive parts.

1493. **Paralysis of the Auditory Nerves.** There is frequently considerable difficulty in distinguishing this affection from organic diseases of the hearing apparatus. Especially is this true of physicians who do not make diseases of the ear a specialty. The affection is, properly speaking, an impairment of the functional powers of the auditory nerves. It is also a symptom of cerebro-spinal meningitis and other diseases affecting the spinal cord.

1494. **Causes.** Doubtless it is often hereditary. Again, it may be induced by acute mental emotion, shocks or concussions, fainting, anæmia, use of hair-dyes, lead-poisoning, narcotics or quinine, masturbation, excessive sexual excitement, debauchery or old age.

1495. **Symptoms.** Paralysis of the nerves sometimes occurs suddenly, again it is more gradual and follows severe diseases. There is little or no pain, but a feeling of uneasiness, dizziness and sometimes nausea and vomiting. There are ringing, buzzing sounds in the ear, sometimes musical, again harsh and unpleasant, doubtless due to the inability of the auditory nerves to correctly convey impressions to the sensorium.

1496. **Treatment.** When this affection is due to anæmia or depression of the nervous forces, tonics and alteratives are indicated. Give my Golden Medical Discovery, together with phosphate of iron, dogwood, nux vomica, hydrastis, etc. Hygienic regulations should be observed. Electricity and galvanism are beneficial, also the injection of ether through the eustachian tube. These agents, however, can only be applied by the professional aurist. I have in some instances benefited cases

of long standing by applying a preparation made from ten drops of *nux vomica*, ten drops *belladonna*, and one ounce of glycerine, two or three drops of which may be put in the ear three times a day. In thus briefly referring to the diseases common to the ear, I have intimated only such treatment as may be employed by the family, and incidentally suggested the advantages that may be derived from instruments which I commonly employ. If I should write more extendedly upon these maladies, giving the full details of the treatment, or report cases which have been cured under my management, it would be of little interest to the general reader. I will therefore content myself with simply saying that I have given my personal attention to surgical operations, connected with the ear, and also have the services of a professional assistant, who is a regular physician of the Faculty at the World's Dispensary, and devotes his time and services to the treatment of these diseases.

DISEASES OF THE SKIN.

1497. Few diseases are less understood by the majority of practitioners of medicine than those which affect the skin. They are situated where they may be readily examined by the senses of sight and touch, nevertheless physicians err in distinguishing these different affections, for which they are entirely inexcusable. Egregious blunders are constantly committed, even by eminent practitioners, and the consequence is, inappropriate treatment.

To facilitate acquiring an accurate knowledge of these diseases, I shall group them together in classes according to their correspondence in general appearances and symptoms. To still further aid the reader in recognizing these various affections, I have had prepared, at considerable expense, colored representations of some twenty different varieties (see Colored Plates I, II, and III), which, although not representing all the minute subdivisions of these affections, show nearly all of the more common ones, which are embraced within my large experience in treating diseases of the skin. Much confusion prevails with medical writers in classifying these affections. The classification which I shall follow is the one arranged by that eminent dermatologist, Erasmus Wilson, and is as well designed as any to simplify the study of these diseases.

ECZEMATOUS AFFECTIONS.

1498. Eczematous affections constitute a very important class of skin diseases, the prominent characteristics of which are *eruption* and *itching*. They are *progressive* in character, passing through all the successive stages of development, from mere redness of the skin to desquamation, or thickening of the cuticle. The disorders belonging to this group are Eczema, Psoriasis, Pityriasis, Lichen, Impetigo, Gutta Rosacea and Scabies or Itch. A careful examination of each of these diseases shows it to be a *modified* form of eczema, and therefore demanding similar treatment.

1499. **Eczema** (*Humid Tetter, Salt-rheum, Running Scall* or *Heat Eruption*). The term "eczema" literally signifies *eruption*, and is used to designate the commonest kind of skin diseases. By the Grecians this disease was termed Psora (to rub), and by the Romans, Scabies (a word derived from *scabere*, to scratch). These terms, however, have been discarded, and are only useful in so far as they convey a good idea of the character of eczema.

1500. In this disease, the minute blood-vessels are congested, causing the skin to be more vascular and redder than in its natural state. There is an itching or smarting sensation in the affected parts. The skin is raised in the form of little pimples or vesicles, and a watery lymph exudes. Sometimes the skin becomes detached and is replaced by a crust of hardened lymph, or it may be partially reproduced, forming squamæ (scales). There are three stages of this disease, viz: (1.) Inflammation, swelling, and the formation of pimples or vesicles; (2.) Exudation succeeded by incrustation; and (3.) The skin separates in little scales and sometimes becomes thickened. Rarely, if ever, does the disease pass through these successive stages, but it is modified by its location and the temperament of the patient.

1501. The many varieties of eczema are designated according to their predominating characteristics. Thus when pimples or vesicles are abundant, it is termed, respectively, *Eczema Papulosum* and *Eczema Vesiculosum*, a fine illustration of which may be seen in Colored Plate I, Fig. 1. Again, when characterized by the eruption of pustules, it is termed *Eczema Pustulosum*, a representation of which may be seen in Plate I, Fig. 2; and



Plate I.

Fig. 1.



Fig. 2.



Fig. 3.

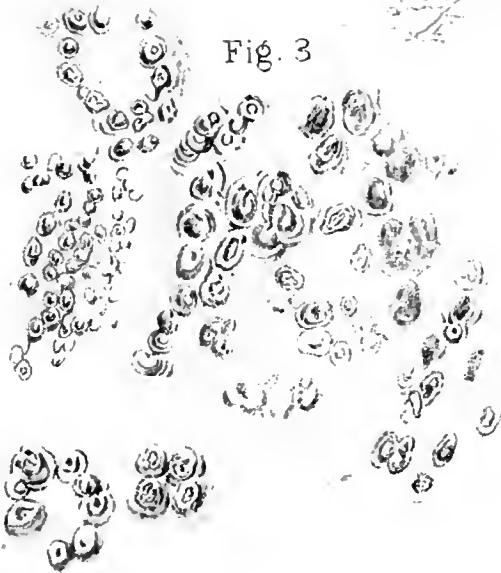


Fig. 5.



Fig. 4.



when the prominent feature is the formation of scales, we term it *Eczema Squamosum*, as shown by the illustration of a small portion of Figure 2. Other varieties are also occasionally met with, as *Eczema Erysipelatodes*, in which congestion and inflammation are the predominant features, and *Eczema Mucosum*, so named from the mucous fluid exuded. Eczema is also designated, according to the situation of the eruption, as *Eczema Aurium* (of the ear), *Eczema Labiorum* (of the lips), etc.

Eczema may be general or partial; in other words, the eruption may appear in patches or be distributed over the entire surface of the body. The latter form often appears in infants, but rarely occurs in adults. Two or more varieties of the eruption may be associated, or one form may gradually develop into another.

1502. *Eczema Acute.* Infants and young children are peculiarly liable to this disorder, and the disease be not properly treated, it will assume the severest form and eventually become chronic. The nurse of the child, the eyes are dull and expressionless, and the little sufferer experiences the most excruciating torments. Frequently the whole body is covered with patches of eczema, the secretions are arrested and when the scales fall off, the skin is left dry and feverish.

1503. Eczema has no symptoms proper since the morbid feelings are due to constitutional debility, of which eczema is the result. The *signs* of eczema are redness, heat, an itching or smarting sensation, the formation of pimples or vesicles, exudation, in resolution, the separation of the crusts into scales and a gradual thickening of the skin.

1504. *Causes.* Three forms of constitutional derangement predispose the system to eczema, viz. nutritive, assimilative and nervous debility. In the former there is a diminution of nutritive power, so that the patient becomes weak and emaciated. Assimilative debility is indicated by impaired digestion and a consequent suppression, or an abnormal state of the secretion. If occasioned by nervous debility, it will be accompanied by all the morbid conditions incident to irritable and exhausted states of the nervous system. Eczema may be excited by a violation of the rules of hygiene, as undue exposure to, or sudden transitions from, heat to cold, deficient or excessive exercise, impure air,

when the prominent feature is the formation of scales, we term it *Eczema Squamosum*, as shown by the more highly colored portion of Plate I, Fig. 2. Other varieties are also mentioned as *Eczema Erythematosum*, in which congestion and inflammation are the predominant features, and *Eczema Mucosum*, so named from the mucons fluid exuded. Eczema is also designated, according to the situation of the eruption, as *Eczema Aurium* (of the ear), *Eczema Labiorum* (of the lips), etc.

Eczema may be general or partial; in other words, the eruption may appear in patches or be distributed over the entire surface of the body. The latter form often appears in infants, but rarely occurs in adults. Two or more varieties of the eruption may be associated, or one form may gradually develop into another.

1502. *Eczema Infantile*. Infants and young children are peculiarly subject to this disorder, and if the disease be not promptly arrested it will assume the severest form and eventually become chronic. The muscles are soft, the eyes are dull and expressionless and the little sufferer experiences the most excruciating torments. Frequently the whole body is covered with patches of eczema, the secretions are arrested and where the scales fall off, the skin is left dry and feverish.

1503. Eczema has no symptoms proper, since the morbid feelings are due to constitutional debility, of which eczema is the result. The *signs* of eczema are redness, heat, an itching or smarting sensation, the formation of pimples or vesicles, exudation, incrustation, the separation of the cuticle into scales and a gradual thickening of the skin.

1504. **Causes.** Three forms of constitutional derangement predispose the system to eczema, viz: nutritive, assimilative and nervous debility. In the former there is a diminution of nutritive power, so that the patient becomes weak and emaciated. Assimilative debility is indicated by impaired digestion and a consequent suppression, or an abnormal state of the secretions. If occasioned by nervous debility, it will be accompanied by all the morbid conditions incident to irritation and exhaustion of the nervous system. Eczema may be excited by a violation of the rules of hygiene, as undue exposure to, or sudden transitions from, heat to cold, deficient or excessive exercise, impure air,

improper clothing, etc., etc. Violent mental and physical excitement may predispose the system to the disease. It may be due to strumous diathesis.

1505. **Psoriasis.** Psoriasis may be defined as a *chronic form of eczema*. The transition of the last stage of eczema into psoriasis is indicated by a tendency of the inflamed, thickened, scaly skin to become moist when rubbed. This disorder is never general except in cases of congenital eczema. It usually appears in patches in various portions of the body. The skin is parched and highly discolored. The hairs are harsh and scanty. The patient is constantly tormented by an unbearable itching sensation and if the skin be rubbed it exudes a viscous or sticky fluid. These are the characteristic signs of psoriasis. It generally appears on the flexures (folds or crooks of the joints), the backs and palms of the hands, the arms and the lower portion of the legs. This disease is liable to be confounded with lepra, or *lepra alphas*, (white leprosy). It may be distinguished from lepra (1) by its causes, which are irritation and disorder of the nutritive, assimilative and nervous functions, while leprosy is an hereditary affection having no dependence upon health; (2) by its pruritic, or itching character, which in leprosy is absent; (3) by the patient's recovery—whereas leprosy is essentially incurable.

1506. **Pityriasis.** (*Branny Tetter, or Dandruff.*) This affection is a mild form of psoriasis, from which it may be distinguished by a more superficial congestion or inflammation of the affected part, the absence of swelling and the formation of smaller scales, having the form and appearance of fine *bran*. It generally appears on the scalp, sometimes extends over the face, and in rare instances affects the entire surface of the body. The signs peculiar to this disease are slight inflammation, itching and the formation of minute scales. With reference to the extent of the affection, it is termed *pityriasis localis* when it is confined to the face, scalp, hands or feet, and *pityriasis diffusa*, when the whole body is covered with patches of yellow scales. It is termed *pityriasis capitis* when confined to the head. This form of the eruption is liable to degenerate into *favus* (scald-head).

1507. *Pityriasis Rubra* is a general or diffused form of the disease, and in its severest stages is the most interesting and

remarkable of eczematous affections. Hebra noted three cases of this disorder in his practice. In each instance it presented the following peculiarities, viz: The surface was of a bright red tint, but if pressed with the finger would assume a tawny yellow color. It was covered with minute branny scales, but there was scarcely any itching and no excoriation or peeling of the cuticle.

1508. *Pityriasis Nigra* is an affection peculiar to persons born in India. The peculiar characteristics of this disease are inflammation without exudation, the detachment of scales exposing a red, glazed surface, absence of itching or burning sensations, a healthful activity of the digestive organs, weakness and emaciation. But the prominent feature of the disease is the peculiar appearance of the skin. At times it appears as if covered with a layer of imbricated scales, as on a fish. Again, the intensely red surface is traversed by white parallel layers of cuticle in the form of plate armor. Colored Plate II, Fig. 7, is an admirable representation of this arrangement of the scales. If you pass the hand *downward* over the skin the surface will feel smooth and soft, if *upward*, it will feel rough and a large quantity of scales will be detached.

1509. **Causes.** Pityriasis is caused by nutritive debility and is often associated with erysipelas, rheumatism and bronchitis.

1510. **Lichen** (*Papular Rash*). Lichen is a term used to designate an eruption of minute conical pimples, which are more or less transparent, red, and occasion great annoyance. The eruption is attended with a severe, hot, prickling sensation, as if the flesh were punctured with hot needles. The pimples contain no pus, but if opened, they exude a small quantity of blood and serum. This disease more frequently occurs between the ages of twelve and fifty, but occasionally appears during dentition, when it is called "tooth rash." The lichen pimples are sometimes dispersed singly over the skin and gradually subside, forming a minute scale, corresponding in position with the summit of the pimple. When the pimples appear in clusters, there is a diffused redness in the affected part, and if they be irritated, minute scabs will be formed. Lichen generally appears on the upper portion of the body, as on the face, arms, hands, back and chest.

1511. The various forms of lichen are designated according

to their causes, signs, location, manner of distribution, and the form of the pimples.

Lichen Simplex is the simplest form of this disorder, and is indicated by the appearance of minute pimples, which, when the distribution is general, are arranged like the blotches of measles. Sometimes the eruption is local and bounded by the limits of an article of clothing, as at the waist. In eight or ten days, the cuticle separates into minute scales, which are detached and thrown off; but a new crop of pimples soon appears and runs the same course, only to be succeeded by another, and thus the affection will continue for months and even years.

In *Lichen Dispersus*, as the name implies, the pimples are distributed over the entire surface of the body. The pimples are hard, and occasion an unbearable sensation of itching. This is the most common variety of lichen, and not unfrequently is a sequence of scabies (itch).

Lichen Circumscriptus is an aggravated form of *Lichen Simplex*, and characterized by a circular arrangement of the pimples. The circumference which marks the limit of the patch is sharply defined. This form of lichen usually appears on the chest, hips or limbs, and is not unfrequently mistaken for ringworm.

Lichen Strophulosus is a variety peculiar to infants. Dermatologists recognize several subdivisions of this species, but the general characteristics are the same in all. The pimples are much larger than in the other forms of lichen, of vivid, red color and the duration of the eruption is limited to two or three weeks.

Lichen Urticatus is also an infantile affection and begins with inflammation, which is soon succeeded by the eruption. In a few days the pimples shrink, the redness disappears and the skin has a peculiar bleached appearance. The eruption is attended by an intense itching sensation and if the skin be ruptured, a small quantity of blood will be discharged and a black scab formed. This variety of lichen is very obstinate and of long duration.

Lichen Tropicus, popularly known as "prickly heat," is an affection which "attacks Europeans in hot climates." It is characterized by the appearance of numerous red pimples of an irregular form, distributed over those portions of the body

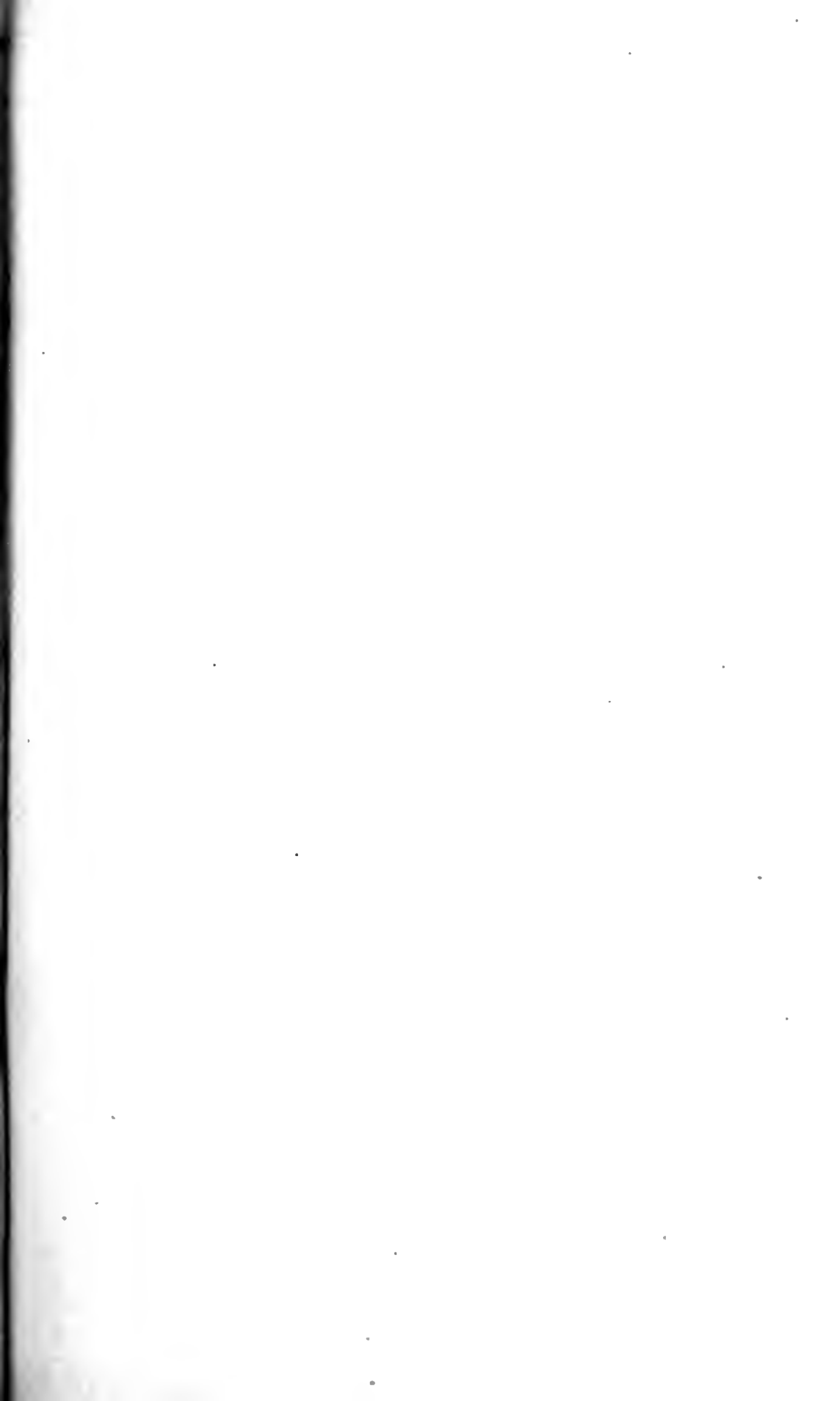


Plate II.

Fig. 6.



Fig. 7.

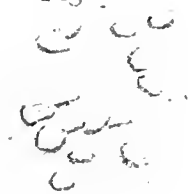


Fig. 8.



Fig. 9.



Fig. 10.



Fig. 11.



Fig. 12.



Fig. 13.



usually covered by the clothing. It is attended with a fierce, burning, itching sensation, which is aggravated by warm drinks, friction of the clothing and the heat of the bed. The eruption indicates a healthy condition of the system—its suppression or retrocession is an unfavorable symptom, denoting some internal affection, as deranged nutrition.

In *Lichen Planus*, as the term indicates, the pimples are flattened. There is no sensation of itching or formation of scabs. The pimples are solitary, have an angular base and the fresh pimples formed appear on the spaces between their former eruptions. This affection usually attacks some particular region, as that of the abdomen, hips, chest, etc. Instances are recorded in which it appeared on the tongue and the lining membrane of the mouth. Sometimes it appears in patches, but even then the margin of each pimple can be discerned.

Lichen Pilaris and *Lividus* are modifications of lichen simplex, the former being so named to describe the location of the pimples, *i. e.*, surrounding the minute hairs which cover the body, especially the lower limbs. The term *Lichen Lividus* indicates the dark purplish hue caused by a torpid circulation and the consequent change of arterial into venous blood before leaving the pimples. *Lichen Circinatus* is a modified form of *Lichen Circumspectus*. The pimples in the center of the circular patch subside and a ring is formed which gradually increases in size. When the rings become broken or extend in regular forms the affection is termed *Lichen Gyrateus*.

1512. **Causes.** Constitutional debility predisposes the system to this eruption. The exciting causes are irritation of the skin, strumous diathesis, dentition and any violation of hygienic rules. Although lichen is not a fatal disease, yet it tends to reduce the vitality of the system.

1513. **Impetigo.** (*Crusted Tetter or Scall.*) Impetigo is a term applied to an inflammation of the skin, more severe and energetic in its character than that of the preceding affections. I have found the predominating characteristics of eczema and lichen to be the presence of exudation in the former, and the absence of it in the latter.

1514. Impetigo is marked by the formation of yellow pus, which raises the cuticle into pustules. There is a slight swelling,

redness and the pus gradually dries up, forming an amber colored crust, a representation of which is given in Colored Plate I, Fig. 5. It soon falls, leaving the skin slightly inflamed, but with no scar. The pustules are sometimes surrounded by a cluster of smaller ones.

1515. The varieties of impetigo are designated according to the distribution of the pustules. Impetigo *Figurata*, is characterized by the appearance of large clusters upon an inflamed and swollen surface, generally upon the face, but sometimes upon the scalp. This form is represented in Colored Plate I, Fig. 4. In Impetigo *Sparsa* the pustules are scattered over the whole body.

The only affections for which impetigo is liable to be mistaken are erythema and variola, from either of which it may be distinguished by the superficial inflammation incident to the former while in the latter it is intense.

1516. **Causes.** The predisposing cause of impetigo is nutritive debility, and the exciting causes are irritation, impure air and errors of diet.

1517. **Gutta Rosacea.** (*Rosy Drop*). This affection is usually described by dermatologists under the name of *Acne Rosacea*, but Dr. Wilson has made an admirable distinction between these diseases. In his own words, "Gutta Rosacea is the red and pimply face of the mid-period of life; a disease of inflammatory congestion and depending upon constitutional causes: *Acne* is a disorder of secretion, of nutrition, of growth, and the development of the cutaneous tissues."

1518. It is a *progressive* disease, and its successive stages of development mark the several varieties, as *Gutta Rosacea Erythematosa* (redness), *Papulosa* (pimples), *Tuberculosum* (tubercles), *Pustulosa* (pustules). This affection is attended with heat, itching and throbbing. The pustules contain serous lymph, which exudes if the cuticle be broken, and forms a crust at the summit of the pustule.

This eruption often appears on the face of persons addicted to intemperate habits, and has thus received the name of "rum blossom."

1519. **Cause.** It is essentially a chronic affection, and depends upon constitutional causes.

1520. **Scabies.** (*Itch.*) This disease is characterized by a profuse scaliness of the skin, by an eruption of pimples, vesicles, and in rare instances of pustules (festers). Its prominent feature is an intense itching, so aggravating that, in many instances, the skin is torn by the nails. Unlike other diseases of the skin, it is not due to inflammation, but is caused by animalculæ, or little animals termed by naturalists the *acarus scabei*. This minute animal burrows in the skin, irritating it, and thus produces the scaliness and itching. The vesicles are comparatively few in number, and contain a transparent fluid. The pustules are only present in the severest forms or when the skin is very thin and tender. It is then termed "pustular itch."

1521. The parts usually affected are the hands, flexures of the joints, and the genital organs. Cases are recorded in which the scabies appeared upon the face and head, but they are of rare occurrence. The activity of the animalculæ, is modified by the vitality of the victim. In persons of a vigorous constitution, they will rapidly multiply, and in a few days after their first appearance, will be found in almost every part of the body.

1522. The scabies *Norvegica Boeckii*, so named because first noticed in Norway by the eminent European physician, Boeck, is characterized by the formation of a thick, hard crust, containing vast numbers of dead animalculæ, their ova and fæcal matter.

1523. Scabies is not confined to any age or sex, but chiefly affects persons of filthy habits. This disease can only be communicated by contact, or by articles of clothing worn by an infected person. There are certain indications which predispose the system to infection, such as robust health, a hot climate, uncleanness, etc.

1524. **Treatment.** In all the varieties of eczematous affections, except scabies, the treatment of which will hereafter be separately considered, remedies employed with a view to the removal of the constitutional fault are of the greatest importance. The eruption upon the skin is but a local manifestation of a functional fault, which must be overcome by alterative remedies. All the emunctory organs should be kept active. To open the bowels administer a full cathartic dose of my Pleasant Purgative Pellets. Afterwards they should be used in

broken doses of one or two daily, in order to obtain their peculiar alterative effects. The use of my Golden Medical Discovery is also necessary to secure its constitutional remedial benefits. As a local corrective to relieve the itching and disagreeable dryness of the skin, add half an ounce of blood-root to half a pint of vinegar, steep moderately for two hours, strain and paint the affected parts once or twice daily with the liquid. Every night before retiring apply glycerine freely to all the affected parts. Or dissolve one drachm of oxalic acid in four ounces of glycerine and anoint the skin freely. An infusion of black-walnut leaves applied as a lotion to the affected parts has also proved beneficial. The application of my Golden Medical Discovery to the skin, at bed-time, will also prove an excellent local remedy in these skin diseases. The surface of the body must be kept clean by frequently bathing it, and thus stimulating its capillary vessels to healthy activity. All varieties of eczematous affections, excepting scabies, will only be temporarily relieved by external applications, while the radical cure depends upon a protracted use of alterative medicines. Therefore, I would again remind the reader of the necessity of keeping the bowels active, and removing all morbid taints of the blood and faults of the secretory organs by the use of the Golden Medical Discovery.

1525. *The successful treatment of Scabies* generally requires only local applications, for the object to be attained is simply the destruction of the little insects which cause the eruption. Happily we possess an *unfailing specific* for this purpose. Numerous agents have been employed with success, but sulphur enjoys the greatest reputation for efficacy, and since it is perfectly harmless I advise it for this class of diseases. Take a quantity of the flowers of sulphur and mix with sufficient lard to form a good ointment. Having first divested the body of clothing, anoint it all over freely, and rub the ointment thoroughly into the pores of the skin while standing before a hot fire. The application should be made at night before retiring, and the patient should wear woollen night-clothes or lie between woollen blankets. In the morning after the application, the patient should take a warm bath, washing the skin thoroughly and using plentifully of soap. This treatment must be repeated

two or three times to be certain of a perfect eradication of the disease. After this course of treatment, the wearing apparel, as well as the bed-clothes, should be thoroughly cleansed, as a precaution against a return of the disease.

ERYTHEMATOUS AFFECTIONS.

1526. Many of our time-honored writers classified the eruptive fevers, such as scarlatina and rubeola, with the slight flushing of the face known as *rash*. There is an obvious distinction between them, hence I have treated the former in my chapter on fevers, and shall consider in this connection erythematous affections proper. I found the prominent features (eruption and itching) of *eczematous* affections to be purely local. But *erythematous* affections are remarkable for their symptoms of constitutional disorder. Each of these affections is preceded by intense febrile excitement and nervous debility. In brief, the local manifestations are simply signs of general internal disorder; hence, the treatment should be directed to the restoration of the general health of the system. This group includes *Erythema* (proper), *Erysipelas* and *Urticaria*. As *Erysipelas* has been considered with the eruptive fevers in a preceding part of this volume it will be omitted here.

1527. **Erythema.** A vivid and partial flushing of the face is produced by a superficial inflammation of the skin, termed erythema. There are many stages of this disease, from the instantaneous transient flush caused by emotional excitement, to the protracted inflammation and swelling of *Erythema Nodosum*.

The affection is characterized by a flush which is at first a bright vivid scarlet but changes to a deep purplish tint. There is a slight elevation of the skin, sometimes accompanied by itching. In the second stage of development, the flush subsides, the skin has a yellowish or bruised appearance and a few minute scales are formed. In erythema papulosum (a fine representation of which is given in Colored Plate III, Fig. 18), there is an eruption of red pimples or pustules. The prominent feature of *erythema nodosum*, a variety of erythema which affects those portions of the skin exposed to the sun, is the appearance of a large swelling, usually lasting four or five days and attended by the

constitutional symptoms—nausea, fever, languor and despondency. The disease is associated with the symptoms incident to a disordered nervous system and sometimes results fatally—in other cases it terminates in melancholy and mania.

1528. **Causes.** The predisposing causes of erythema are constitutional debility, change of climate and temperature and irritating food or medicines. Locally it may be produced by friction and the heat of the sun.

1529. **Urticaria.** (*Hives or Nettle-Rash.*) This word is from *urtica*, signifying a nettle; it is a transient affection of the skin indicated by a fierce, burning, itching sensation and a development of pustules, or white blotches of various forms. A representation of this eruption is given in Colored Plate III, Fig. 17. It is appropriately named nettle-rash from its resemblance to the irritation caused by the sting of a nettle. There is the same sharp, tingling sensation and a similar white wheal, or blotch caused by the muscular spasm of the corium, a layer of the skin.

Urticaria may be either acute or chronic. Acute urticaria is always preceded by febrile symptoms and the attack is indicated by a sudden congestion of the skin, followed by a slight swelling or elevation of the affected part. When the congestion subsides the skin has a bruised appearance. In chronic urticaria the febrile symptoms are wanting.

1530. **Causes.** The exciting causes of urticaria are gastric disorder, irritation of the mucous membrane, or a sudden nervous shock. The predisposing cause is conceded to be assimilative and nervous debility. Hence it frequently accompanies purpura (and scurvy) and rheumatism. The skin of some persons is so susceptible to irritation that urticaria can be kindled at any moment by excitement, as an animated conversation or by the simple pressure of the hand.

1531. **Treatment.** The proper treatment for simple erythema consists in applying to the affected parts a little lime-water and sweet-oil or glycerine, with the use of warm baths and mild cathartics. This is generally sufficient to effect a cure, but should it fail, my Golden Medical Discovery, taken three times a day for a little while, will overcome the disorder.

1532. *For Urticaria*, my Pleasant Purgative Pellets should be administered in sufficient doses to move the bowels, the skin

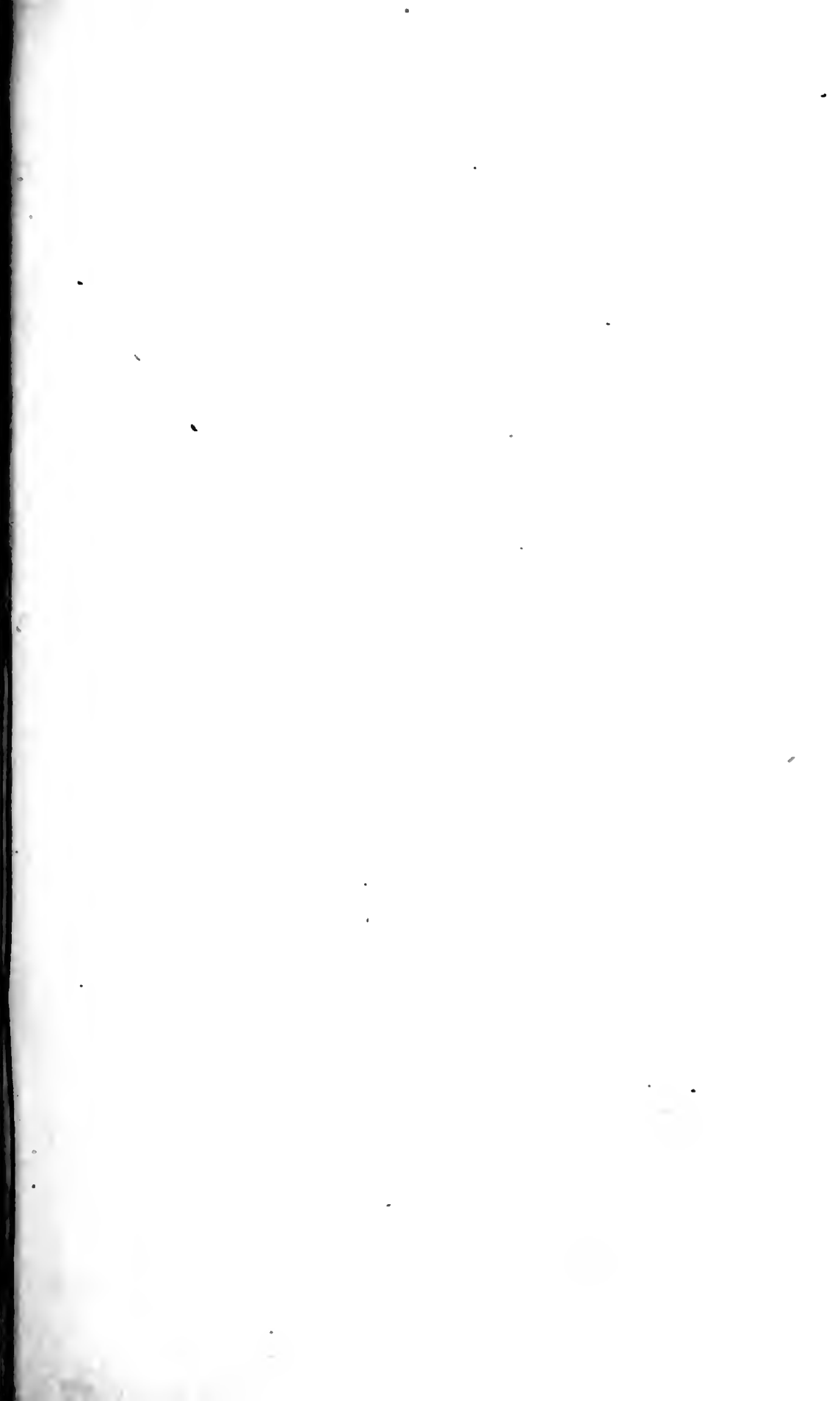


Plate III

Fig. 14



Fig. 15.



Fig. 16

Fig. 20.



Fig. 17.

Fig 18

Fig 19.



bathed with warm water rendered alkaline by the addition of common baking soda or salætatus; and if there be febrile symptoms, a little aconite or veratrum may be administered. In the chronic form of the disease, the diet must be light, unstimulating and easily digested, the skin kept clean by frequent bathing, and fresh air and outdoor exercise freely taken. The somewhat protracted use of my Golden Medical Discovery will result in the greatest benefit in this form of the disease.

BULLOUS AFFECTIONS.

1533. The distinguishing feature of this group of cutaneous affections is the formation of *bullæ*, or blebs, which are defined by Galen as "eminences of the cuticle, containing a fluid." Of the three affections classified under this group, only one, Pemphigus, properly belongs to the order. Herpes and miliaria are *vesiculæ*, yet the vesicles often attain the size of a bulla, and the remote and immediate causes are the same in all; hence the propriety of the classification to facilitate the suggestion of appropriate treatment common to all.

1534. **Herpes** is an inflammation of the skin in which the eruption appears in patches of a circular form. On the second day, minute, transparent vesicles appear and gradually develop, becoming opalescent. On the succeeding days, they shrink and produce reddish brown scabs, which soon become hard and fall off, leaving deep, purplish pits. In adults, these vesicles sometimes terminate in painful ulcers, caused by an irritation of the eruption. By some practitioners, herpes is regarded as a purely nervous disorder, from the fact that it is frequently accompanied by severe neuralgic pains. These pains are not *constant*, but *occasional*, and do not appear at any definite stage of the disease. Sometimes they precede and accompany the eruption. Other instances are recorded in which they remained many years after the disease had disappeared. The local and constant pain of herpes is a severe burning, prickling, itching sensation, which still remains after the scabs fall.

The three *general* forms of this disease are herpes *Zoster*, *Phlyctænodes*, and *Circinatus*.

1535. In *Herpes Zoster*, or Shingles, the clusters of vesicles encircle one-half of the body, frequently at the waist; hence it

has received the name of *zona* or *girdle*. The vesicles often develop into bullæ, and sometimes ulcerate. In *Herpes Phlyctænodes*, the vesicles are small, round, and irregularly distributed over the face, neck, arms and breast. This form is accompanied by febrile symptoms and offensive excretions.

1536. In *Herpes Circinatus*, or Ringworm, the vesicles appear in circular patches or rings. This is the mildest form of herpes, and is not attended by symptoms of constitutional disorder. The various forms of herpes are represented in Colored Plate I, Fig. 3.

1537. **Causes.** Herpes is not contagious. It is caused by vicissitudes of heat and cold, violent emotion, excessive exertion, irritation of the skin, and a general atony of the system.

1538. **Miliaria** (from *milium*, signifying a millet seed), is the name given to an eruption of vesicles which are larger than those of eczema, but smaller than the bullæ of herpes. At first the serum contained in the vesicles is perfectly transparent, and reflects the red tint of the underlying skin: hence the name *miliaria rubra*. But gradually it becomes milky and opalescent: hence the term *miliaria alba*. The vesicles of miliaria are generally solitary, and appear on those portions of the body most liable to become heated and to perspire. The eruption is preceded by chills, languor, slight fever, intense thirst, a sharp prickling sensation of the skin, and profuse perspiration. The vesicles soon desiccate and are replaced by a new crop.

1539. **Causes.** Miliaria is almost universally an accompaniment of febrile disease and all disorders in which there occurs a profuse perspiration. The causes to which it may be traced in each instance are improper diet, impure air, burdensome clothing, strong emotions, etc.

1540. **Pemphigus** is a peculiar eruption which appears upon the limbs and abdomen. The affected part is of a bright red color and in a few hours small vesicles appear containing a transparent fluid. The vesicle soon develops into bullæ, entirely covering the inflamed portion. The fluid becomes opaque and in a few hours escapes. The patch is then covered with a yellow scab. Pemphigus may be either acute or chronic. The acute form is subdivided according to the degree of inflammation, as pemphigus *pompholyx* in which it is severe, and

pemphigus *benignus*, when it is mild. The bullæ of pemphigus are illustrated in Colored Plate III, Fig. 19.

1541. **Cause.** Pemphigus is always caused by a vitiated state of the system.

1542. **Rupia** is indicated by an eruption as large as a chestnut, and containing a watery fluid, which desiccates into a yellowish brown crust. A fine representation of rupia vesicles in both stages of development is given in Colored Plate II, Fig. 13.

1543. **Treatment.** In all forms of herpes the administration of a small dose of my Pleasant Purgative Pellets with the use of my Golden Medical Discovery in teaspoonful doses three times a day, will be followed by the happiest results. The skin should be kept clean by the use of the sponge-bath rendered alkaline by the addition of common baking soda or salæratum. The portion of the body covered by the eruption should be bathed in a solution of sulphate of zinc, one ounce to a pint of water.

Miliaria is generally associated with certain febrile diseases and its proper treatment consists in overcoming the febrile and other constitutional symptoms which accompany the disease. A hot foot-bath and small doses of aconite will suffice to remove the fever. If the stomach and bowels be in a vitiated condition as they are apt to be, a mild cathartic may be administered.

1544. *The treatment of pemphigus* should consist in frequent alkaline sponge-baths, and covering the affected parts with poultices of slippery elm, which should be kept moist with vinegar. The constitutional treatment should embrace the persistent use of my Golden Medical Discovery. When the disease occurs in children it is most generally dependent upon deficient nutrition, and special attention must be given to the diet of the patient, which should be nutritious. Fresh air and outdoor exercise must not be neglected.

The proper treatment of rupia does not differ from that suggested for pemphigus.

NERVOUS AFFECTIONS OF THE SKIN.

1545. In nervous affections of the skin, the natural sensibility may be increased, diminished or perverted. These morbid

impressions arise from the nervous system. Although there are several varieties of these affections, yet being of minor importance, I shall omit their consideration and only speak of one of them in this connection.

1546. **Prurigo** affects the entire surface of the body and imparts to the skin a parched, yellowish appearance. It is characterized by pimples and an intense burning, itching sensation. Rubbing and scratching only aggravate the skin which becomes covered with thin black scabs. A good representation of *prurigo* may be seen in Colored Plate II, Fig. 6. The itching sensations are sometimes caused by chilling the body, by overexercise and heat; allowing the mind to dwell upon the affection aggravates it. Prurigo is recognized under two forms, viz: *Vulgaris*, which is a mild form; and *Senilis*, which chiefly occurs in old age and is more severe. The external genital parts of females are frequently affected with this disease which is aggravated by menstruation and uncleanness.

1547. **Causes.** This affection may be due to a vitiated condition of the blood, and is common to those who are greatly debilitated. It is frequently occasioned by uncleanness, intemperance, use of unwholesome food or by an impure atmosphere.

1548. **Treatment.** To allay the itching, take glycerine, one ounce, add to it one drachm sulphite (not sulphate) of soda and half an ounce of rose-water and apply this to the affected parts. A solution made of borax two drachms, and morphine five grains, dissolved in six ounces of rose-water, makes an excellent lotion to allay the itching. If the disease be severe, it will be necessary to correct the vitiated condition of the blood by a protracted use of my Golden Medical Discovery and to aid its effects give one Purgative Pellet every day—not sufficient to operate as a cathartic, but only to secure its alterative influence.

ALPHOUS AFFECTIONS. (SCALY SKIN DISEASES.)

1549. Differences of opinion exist with regard to the proper classification of these affections. I shall briefly consider *Alphos*, which some confound with *Lepra*.

1550. **Alphos**, which from its Greek derivation signifies *white*, is characterized by circular, slightly raised, white spots. These eruptions vary in size from one line to two inches in

diameter, and may be scattered over the entire surface of the body, although they most frequently appear upon the elbows and knees. *Alphos* may consist of a single tubercle, or of large clusters constituting patches. The scales vary in color and thickness. In Colored Plate III, Figs. 14 and 15, are fine illustrations of *Alphos*. When a person begins to recover from this affection, the scales fall off, leaving a smooth, red surface, which gradually returns to its natural color.

1551. This affection may be classified under three forms, viz: (1.) *Alphos circinatus*, which appears in circular patches upon the limbs and fleshy parts of the body; (2.) *Alphos guttatus*, which occurs in groups; and (3.) *Alphos diffusus*, which is scattered over the entire body, sometimes occurring upon the face, head, elbows, or knees, and again upon the hands. It has no tendency to preserve the rounded form of the *circinatus* variety.

This disease is more liable to occur in winter than in summer, although in some cases the reverse holds true. It may disappear for a time, only to return again with renewed vigor. It is not regarded as contagious.

1552. **Treatment.** Thorough and protracted constitutional treatment is required, to overcome this disease. The Golden Medical Discovery should be taken internally and also applied locally to the affected parts. To every other bottle of the Discovery which is taken you may add one-half ounce of iodide of potash. One or two of my Pellets taken daily will prove a useful adjunct to the Discovery.

1553. Locally, I have sometimes applied a lotion made of oxide of zinc one-half drachm, benzoic acid two drachms, morphine five grains, glycerine two ounces. Muriated tincture of iron one drachm, in one ounce of glycerine, makes an excellent local application. But whatever the local treatment may be, I chiefly rely upon the persistent use of the best alteratives.

AFFECTIONS OF THE HAIR-FOLLICLES.

1554. **Favus** (*Scald-Head*) is a disease peculiar to the hair-follicles, and is indicated by the formation of small yellow crusts, having the form of an inverted cup. The eruption has a very offensive odor. When it appears in isolated cups, it is termed *favus dispersus*, but it oftener occurs in large clusters, as

represented in Colored Plate II, Fig. 12, and is then termed *favus confertus*. It generally affects the scalp, but sometimes extends to the face and neck.

1555. **Cause.** Favus is caused by nutritive debility, which results in a perverted cell-growth.

1556. **Sycosis** (*Barber's Itch*) is an inflammatory affection of the hair-follicles of the face. The prominent features of the disease are redness and the formation of scales. It is peculiar to males. It has received various names, according to its predominating characteristics, as *sycosis papular* (pimples), *tubercular* (tubercles), and *fungus* (from its peculiar structure). Colored Plate II, Fig. 10, is a fine illustration of Sycosis as it appears on the cheek.

1557. **Causes.** Various causes induce the appearance of Sycosis. The general causes are nutritive debility, vicissitudes of heat and cold and an exhausted state of the nervous system. It may also result from various chronic diseases, such as syphilis and dyspepsia.

1558. **Comedones**, or *Grubs*, are due to a retention of the sebaceous matter in the follicles. The sebaceous substance undergoes a change, becoming granular and somewhat hardened. It gradually extends to the mouth of the follicle, where it comes in contact with the atmosphere, and assumes a dark color, as represented in Plate II, Fig. 8. This fact, together with its peculiar form when squeezed out of the skin, has won for it the name of "grub." They often appear in great numbers on the face of persons whose circulation is not active, or those who are of a particularly nervous temperament. Stimulating baths and friction will prove very efficacious in removing these cylinders of sebaceous matter. If they are allowed to remain, they will produce an irritation of the skin causing an inflammatory disease known as

1559. **Acne or Stone-pock.** In the earliest stage of congestion, acne is characterized by minute hardened elevations of the skin, as shown in Plate II, Fig. 9, and is termed *acne punctata*. As the affection progresses a bright red pimple (see Plate II, Fig. 11) appears, having a conical form, hence the name *acne coniformis*. The pimple develops into a pustule containing yellow matter and is then known as *acne pustulosa*. This is

followed by a thickening of the tissues termed *acne tuberculata*. When the thicker skin is removed, it leaves a deep scar, hence the term *acne indurata*.

1560. **Causes.** The remote cause of *acne* is nutritive debility. The immediate causes are rapid growth, anæmia, improper food, errors of hygiene, mental exhaustion and numerous chronic diseases.

1561. **Treatment.** The treatment of favus or scald-head should be commenced by shaving the hair off close to the scalp and washing the head thoroughly with soap and water. In some severe cases it may be necessary to soften the incrustations with poultices, following these with the free use of soap and water. Having thus exposed the scalp and thoroughly divested it of incrustations, apply to it the ointment of iodide of sulphur, which may be procured at any well kept drug store. It should be gently rubbed over the parts night and morning. The scalp must be kept perfectly clean throughout the treatment. Instead of the foregoing, the following may be applied: take oxalic acid ten grains, creosote twenty drops, water two ounces; mix. Follow the use of this lotion in half an hour by anointing the head freely with butter or lard. If a few drops only of muriatic acid be thoroughly incorporated with the butter or lard it will add greatly to the efficacy of the treatment. But while local applications will relieve many skin diseases and mitigate suffering, I cannot too strongly impress upon the minds of my readers the importance in this, as in all other chronic diseases of the skin, of persevering in the use of the best alteratives. Among this class of agents my Golden Medical Discovery stands pre-eminent. Its efficacy may be increased in this disease by adding to each bottle one ounce of the acetate of potash (§ 569), and when thus modified it may be administered the same as if no addition had been made to it.

1562. *The treatment of sycosis* (or barber's itch) should be essentially the same as that suggested for favus (or scald-head) and will result in prompt relief and permanent cure.

1563. *Treatment of Acne.* In the treatment of this, as in that of other diseases, we should seek to ascertain the cause and when possible remove it. Outdoor exercise, a spare, unstimulating diet and perfect cleanliness are of the first importance.

The affected parts should be bathed in warm water and Castile, or what is better, carbolic soap. Washing the face in cold water generally aggravates the disease. As a local application to the little pustules, I have used with good results the following lotion: Take of oxide of zinc twenty grains, morphine five grains, glycerine two ounces; mix. First having washed the affected parts thoroughly, apply this compound. Our chief reliance, however, as in the preceding diseases, should be upon the persistent use of alteratives and mild cathartics or laxatives.

FURUNCULAR AFFECTIONS. (BOIL-LIKE AFFECTIONS.)

1564. Under this head properly belong boils, carbuncles and styes, which have been considered in preceding portions of this volume and hence will be omitted here. With these affections Erasmus Wilson has grouped

1565. **Ecthyma.** This is a pustular disease, partaking somewhat of the characteristics of boils. The essential points of difference between ecthyma and boils are the free suppuration of the former throughout the whole pustule and the presence of a core of cellular tissue in the latter.

1566. A fine illustration of the large pustules of ecthyma is given in Colored Plate III, Fig. 20. These pustules may be dispersed more or less extensively over the body and limbs, but most commonly are confined to the lower extremities. They are hardened and inflamed at their base, distended with deep yellow pus (matter), and distinctly circumscribed. The pustule commences as a small itching, tingling pimple (represented in Colored Plate at letter H), which increases in size until a little pus is formed on its summit as seen at I. The pustule discharges in about three days, and dries up into a yellowish gray or brown scab, as seen at K, in Colored Plate. If this be detached too soon, a small ulcer is left which dries up into a larger secondary scab, as seen at L. When this scab is separated the ulcerated condition of the skin is brought to view, as represented at M. This in turn becomes covered with a thick scab, which, when removed or allowed to drop off, leaves a pit still deeper than that left by its predecessors. At O, in Colored Plate III, Fig. 20, may be seen a representation of a cluster of pustules in their crusted state.

1567. **Causes.** These pustules arise in consequence of constitutional debility and perversion of the nutritive functions.

1568. **Treatment.** This must be both local and constitutional. The local applications should be such as will moderately stimulate the skin. Thorough washing of the affected parts night and morning with carbolic or juniper-tar soap and tepid water, followed with a dressing of resin ointment, which may be procured of the apothecary, will be a suitable local treatment. The proper constitutional treatment does not differ from that suggested for boils on page 462, ¶ 874. The prominent indication is to cleanse the blood, which is the great fountain of life, and good digestion, a fair skin, buoyant spirits, vital strength and soundness of constitution, will all be established.

WARTS.

1569. These excrescences appear most frequently upon the hands. Their causes are very obscure. If cut or punctured they exude a watery or bloody serum that, applied to the skin, is apt to produce others of the same kind.

They may be removed by applying to them a drop of chronic acid and this treatment is much superior to the remedies usually recommended, which savor more of enchantment, sorcery, magic or hocus-pocus, than of science or common sense.

CORNES.

1570. *Corns* are Nature's bulwark against oppression, her protest against pride. If this definition be deemed too indefinite or fanciful, another may be added, viz: Corns are abnormal protuberances upon the feet or toes, thrown out as a protection to the delicate nerves beneath, to relieve them from the pressure caused by wearing tightly-fitting boots or shoes. Corns may vary much in size and are either hard or soft. Those formed between the foot and the boot are almost always hard. Those between the toes, caused by their pressure one upon another, are nearly always soft. When subjected to only the ordinary amount of pressure they may be painless, and occasion no great annoyance. But if from any cause the pressure be increased, the surrounding parts will become actively inflamed and give rise to much suffering and lameness.

1571. **Treatment.** The first thing to be done is to remove the cause. Substitute a more comfortable boot or shoe, or make a hole in the leather over the corn to give it room. Do not, however, go from one extreme to another, and select a boot so large that it will allow the foot to move about and chafe the already irritated part.

1572. Never attempt to extirpate a corn while there is active inflammation or great soreness in the surrounding tissues. This condition will usually disappear after the provoking cause is removed. If it does not, then apply to the part some soothing cerate or ointment. Having thus subdued the swelling and tenderness, soak the foot in warm water to soften the corn, and pare it down well with a sharp knife. Then have ready some nitromuriatic acid, and with a camel-hair pencil, or a sharp-pointed pine stick, apply a small drop to the corn. The surrounding parts should be protected with a thin layer of soda or salætatus, or with a thin piece of leather, having a hole cut through it large enough to expose the corn. After using the acid, in the manner described, apply an adhesive plaster over the parts, and, on removing it a few hours later, the corn will usually come away with it. If it does not, apply a little more of the acid from time to time, until it can be thus removed.

INGROWING TOE-NAILS. (ONYXIS.)

1573. A person who has never experienced the suffering arising from an inversion of the toe-nail may think that the subject is unworthy of notice in this volume. Yet this affection sometimes assumes formidable proportions, giving rise to great suffering and requiring weeks and even months of treatment for its cure.

This malformation consists of a curling down of the sides of the nail of the great toe, which grows into the flesh and gives rise to inflammation, swelling and suppuration. The part becomes extremely tender and irritable, so that a boot or shoe cannot be worn. In extreme cases the toe swells and fungous flesh develops to such an extent that all trace of the original form of the member is lost, and it becomes a large, unsightly tumor. A case is on record in which it became as large as a goose egg and the whole foot and leg were involved in the inflammation. Matter

was discharged from several openings, and the part was so sensitive and tender that the patient could not endure the weight of a fly upon it.

The case is liable to reach a serious condition like the one referred to, as the result of the savage and irrational treatment to which it is sometimes subjected by unskillful practioners; such as slitting the nail and pulling out the offending part with the forceps, or cutting it out with the knife, and treating the wound with acetate of lead or mercury. The result is that the nail grows inverted again, and is worse than it was previous to receiving such surgery.

1574. **Treatment.** In the incipient stage relief may be given by softening the nail in hot water or weak lye, and then with a sharp knife cutting out a narrow trough or furrow in the middle of it, running lengthwise from the front edge to the root. This cut should not be deep enough to give pain. Nature immediately makes an effort to fill the crease that has been made, the nail grows toward the centre and draws away from the edges, thus giving desired relief.

In advanced and serious cases, like the one referred to, resort must be had to more extended and efficacious treatment. In the first place the swelling, soreness and inflammation must be reduced so that the part can be handled. To accomplish this, soak the toe an hour or two each day in warm, weak lye, and during the interval, poultice it with slippery-elm. It may require three or four days to reduce the inflammation. Then, wherever the nail is softened and most easily detached, press under it with a probe little pledgets of cotton to raise it. Also, press pledgets down at the sides and between the nail and the flesh which has risen up over it. Dress with some simple ointment to keep down the inflammation, bandage and keep the part moist with warm water. Twice a day the part should be soaked in weak lye and the toe be thus dressed. Continue to push the pledgets under as the flesh cleaves from the nail, and cut away portions of it as fast as they become loose. In this manner the offending portion may be removed, the ulcers healed and there will be no return of the trouble. Should excessive granulation, or "proud-flesh," occur and prove obstinate, dust it with powdered blood-root (§ 465) or burnt alum.

FELON. (WHITLOW.)

1575. "Multum in Parvo" may well be said of this local affection, where within a little space so much pain is experienced. Its usual location is near the end of the finger, where the nerves of sensation are very numerous. Indeed, a more favorable position to make itself *felt* could hardly be selected. The palm of the hand is occasionally the seat of its manifestation. The nerves of sensation here are not so numerous, but the number of tendons and ligaments involved, increases the severity of the local disease.

Medical men recognize three or four varieties of felon, distinguished from one another chiefly by the different tissues in which they originate. They may find their starting point between the periosteum (bonesheath) and the bone, or any where between that part and the skin. These nice distinctions, however, are not of any service to those for whom this work is written, and are therefore omitted with this mere allusion to them.

1576. **Causes.** In a majority of cases, the cause is not apparent. It may be produced by some local injury, as a strain, a bruise or a puncture, especially if the latter be made by a poisoned instrument.

1577. **Symptoms.** The first sensation experienced is a pricking or stinging pain, which might result from a wound inflicted by a sliver or briar. So close is this resemblance that the person is frequently deceived, and goes to prospecting with a needle or penknife for the supposed "thorn in the flesh": but he fails to find it. Meanwhile it keeps "jabbing away" at intervals, or sometimes almost constantly, for two or three days, when the part becomes inflamed, begins to swell, and it is evident that the "thing" has come to stay, at least until it has run its usual course, terminating in suppuration. This will occur in from four to ten days, according to the distance the pus (matter) has to travel, and the nature of the obstructions it has to overcome before reaching the surface. If it be deep seated, pieces of the bone will be discharged. In very severe cases, a whole joint may be lost. When it occurs in the palm of the hand, it has been known to occasion such extensive destruction among the bones, cords and tendons, as to permanently impair the use of that member.

1578. **Treatment.** This part of the subject deserves special consideration, not only on account of the painful nature of the affection, but also because of the serious consequences that so often result from it.

If taken in season, there is positively no necessity for permitting one of these troublesome pests to "come to a head." In the incipient stage, their further development is easily arrested. Many different applications are recommended for this purpose. It should be borne in mind, however, that success depends more upon *compression*—mere *mechanical compression*—than upon the medicinal properties of any poultice or liniment that can be applied. Hence, whatever is used must be bound on very tightly. One of the simplest, and yet one of the most efficacious remedies, if used in the early stages of the affliction, is the following: Take a raw egg, break and empty it, peel off the skin from the inside of the shell, and wind it around the finger over the seat of the pain. Put the inside, or wet side, next the skin. It should remain as applied ten or twelve hours, if the patient can endure it. The principle of its action is purely mechanical. As it dries it contracts with great force, and thus effectually compresses the affected parts. Any one who may doubt this, can easily test it upon his sound finger. If put on tightly at first, one will be glad to get rid of it within an hour. In the palm of the hand, of course, this appliance cannot be made available.

One of the best medicinal preparations that can be used is finely pulverized salt wet with spirits of turpentine, bound tightly on the afflicted part and allowed to remain one or two days. It should be moistened from time to time with the turpentine, which can be done without removing the bandage.

Poke-root (¶ 460) bruised and applied as a poultice is useful in the incipient stages. Soaking the finger for a long time in lye or lime-water, as strong and as hot as can be borne is highly recommended. However, I place more confidence in the first two remedies than in any and all others.

After pus has once formed, nothing will be gained by postponing an operation to let it out. Much suffering will be avoided by lancing it as soon as the throbbing pain indicates that pus has formed. When this operation is postponed, the pus burrows and extends under the strong fibrous sheath of the bone

and causes far greater destruction to tissue than when it is early released. The point selected for this operation should be as near as possible where the swelling would naturally break. A common thumb-lancet or sharp-pointed bistoury is the instrument usually selected with which to make the incision, and it should be made to cut completely down to the bone, in order to lay open the fibrous sheath surrounding it and under which the pus usually forms. The parts should be laid open by a *deep, free incision*. No half-way surgical procedure will be of any benefit. Relief from the pain will be instantaneous, if the operation is thoroughly performed. I have frequently produced local anæsthesia of the finger to be operated upon, by throwing upon it a spray of sulphuric ether and rhigolene. This produces a momentary freezing, during which the felon may be lanced without pain to the patient, after which the parts suddenly thaw and the circulation and sensibility are restored. After the operation the wound may be treated with warm poultices, ointments or salves.

WOMAN AND HER DISEASES.*

1579. An imaginative poet avers that woman is the link connecting heaven and earth. True it is, we see in her the embodiment of purity and holiness, heavenly graces, the most perfect combination of modesty, devotion, patience, affection, gratitude, and loveliness, and the perfection of physical beauty, blending grace in outline, with delicacy and compactness of texture. We watch with deep interest the steady and gradual development from girlhood to womanhood, when the whole person improves in grace and elegance, the voice becomes more sonorous and melodious, and the angles and curvatures of her contour become more rounded and amplified, preparatory for her high and holy trust.

1580. The uterus and ovaries, with which her whole system is in intimate sympathy, render her doubly susceptible to injurious influences and a resulting series of disease, from which the other sex is entirely exempt. By their sympathetic connections, they wield a modifying influence over all the other functions of the system; they mould her character, beautify and perfect her form. Physically and mentally, she is man modified, perfected,

* For an illustration of the generative organs of woman, see page 217.

—the last and crowning handiwork of God. When, therefore, this structure so wondrously endowed, so exquisitely wrought, and performing the most delicate and sacred functions which God has ever entrusted to a created being, is disturbed by disease, when the nicely-adjusted balance of her complex nature deviates from its true and intended poise, the most efficient aid should be extended, in order that the normal equilibrium may be regained, her health restored, and her divine mission, on which human welfare so largely depends, be fulfilled. Its importance should elicit the best efforts of the highest type of mind, the ripe development of genius, and the most studied manipulation, with the choicest, rarest, and purest medicinal elements in the whole range of nature.

1581. As the remedial management of those diseases peculiar to women has entered very largely into our practice at the World's Dispensary, involving the treatment of many thousand cases annually, we have been afforded great experience in adapting remedies for their cure, enabling us to meet their requirements with greatly increased certainty and exactness. As the diamond and other of the most precious stones are hidden away in nature's secret recesses, requiring patient toil and diligence to unearth them, so by the same unceasing toil we have secured the most precious and valuable remedial agents designed for woman's use, from recesses in vegetable life heretofore unexplored, with which to gem the world of medicine.

MENSTRUATION AND ITS DISORDERS.

1582. The office of the ovaries is to furnish ova or germs, which are the stimuli to the functions of the uterus or womb, (see page 217). The functional duties of the latter organ are (1) to secrete mucus; (2) to exude the menses; (3) to secrete the decidua (§ 301); (4) to contain and nourish the fœtus and (5) to effect its expulsion.

1583. Menstruation, also termed the menses, monthly visitation, catamenia, menstrual flow, courses, periods, etc., usually makes its appearance in the human female between the twelfth and fifteenth years, at which time the reproductive system undergoes remarkable changes. A marked characteristic of menstruation is its regular return about every twenty-eight days. The

menstrual flow usually continues from three to six days, and the discharge seems to be ordinary blood, which, during its vaginal passage, becomes mixed with mucus, and is thereby deprived of the power of coagulation. The quantity exuded varies from four to eight ounces and the amount suitable to the health of one person, may be excessive and weakening to another. This function is regarded as *regular* when its effect upon the system is favorable, for whatever organic process directly contributes to the health must be considered normal. It occurs at regular intervals for about thirty years, when menstruation and the aptitude for conception simultaneously ceases.

1584. The departures from healthy menstruation are numerous. The more important of them may be classed as follows: (1.) Amenorrhœa; (2.) Dysmenorrhœa, and (3.) Menorrhagia.

AMENORRHŒA.

1585. The term Amenorrhœa signifies absence of menstruation when it should occur. It may be considered under two general heads: (1.) When it fails to be established at the proper age; and (2.) When, after having made its appearance, it ceases to return at the usual periods. The term *retention* has been applied to the first, and that of *suppression*, to the latter. Menstruation may fail to be established in consequence of (1) organic defects, or (2) from some abnormal condition of the blood and nervous system.

1586. **Malformation of the Vagina.** Retention of the menses may result from malformation of the vaginal canal, which sometimes terminates before it reaches the womb, being simply a short, closed sac. If the uterus and ovaries be perfect, all the feminine characteristics will be manifest, and a vaginal exploration will disclose the nature of the difficulty. If, however, the sides of this passage adhere in consequence of previous inflammation, they may be carefully separated by surgical operation, and this function be restored.

1587. **Absence or Malformation of the Womb.** The uterus may be malformed or entirely absent, and yet there be an inclination, or symptoms indicative of an effort, to establish this function. The individual may be delicate in organization, graceful in bearing, refined and attractive in all

feminine ways, and yet this organ be so defective as to preclude the establishment of the menstrual function. Sometimes there is merely an occlusion of the *mouth* of the uterus, the perforation of which removes all difficulty. In others, the *neck* of the womb is filled with an adventitious substance, or the walls of its canal are adherent as the result of inflammation, and may be separated by a small silver or ivory probe, and the menses thus liberated.

1588. **Imperforate Hymen.** The hymen is a circular or semi-lunar (half-moon) shaped membrane, which imperfectly closes the outer orifice of the vagina in the virgin. It usually, when of a semi-lunar shape, occupies the lower or posterior portion of the canal, leaving an opening in the upper or anterior portion varying from the size of a quill to that of a thimble, through which the menstrual fluid exudes. This membrane is usually ruptured and destroyed by the first sexual intercourse, and hence its presence has been considered evidence of virginity. Its absence, however, must not be considered as conclusive evidence of sexual intercourse, for, as Dr. Robley Dunglison says, "many circumstances of an innocent character may occasion a rupture or destruction of this membrane. It is often absent in children soon after birth; while it *may* remain entire after copulation. Hence the presence of the hymen does not *absolutely* prove virginity; nor does its absence prove incontinence, although its presence would be *prima facie* evidence of continence."

1589. Sometimes this membrane, when not imperforate, is so thick and strong as to render sexual intercourse impossible, and requires a cutting operation to open the vagina. Several such cases have been operated upon at the World's Dispensary.

1590. It occasionally happens that the hymen is entire, or imperforate, at birth. This may not be discovered before puberty. But when this period arrives and the menstrual discharge takes place into the vagina, the female will suffer from retention and accumulation of this secretion, and ultimately a tumor or a protrusion of the membrane which closes the vagina will occur, giving rise to severe pain and other serious symptoms. The retained menstrual fluid, increasing in quantity at every monthly period, dilates the womb as well as the vagina, and even the Fallopian tubes (see page 217) become distended, presenting at length an urgent necessity for relief.

1591. **Treatment.** This condition admits of relief only by operative surgery. The operation consists in dividing the hymen by a crucial incision thus allowing the accumulated fluid to be discharged, after which the vagina is cleansed by syringing it with warm water.

1592. **Absence of the Ovaries.** Let us suppose the case of a young woman who has fully reached the period of puberty without having menstruated. All the organs which we have described are manifestly developed, she is healthy, vigorous, robust and able to exercise freely or engage in laborious occupations. But we notice that her voice is not sweetly feminine, nor her presence timid, tender and winning; there is wanting that diffident sexual consciousness which gently wooes, and at the same time deferentially repels, and is intended to awaken interest, curiosity and desire. Considering also that she has never manifested any inclination to menstruate, we are irresistibly led to the conclusion that the ovaries are wanting; the delicate mustache upon the upper lip, the undeveloped breasts, the coarse features and her taste for masculine pursuits, all concur in this diagnosis. Thus we account for the harshness of the voice, fitted for command rather than to express the mellow, persuasive cadences of love. Such a malformation cannot be remedied.

1593. **Retention and Suppression from Morbid Conditions of the Blood.** Non-appearance, as well as suppression of the menses, may result from an abnormal state of the blood. The first condition that demands our attention under this head is *Plethora*. In robust, plethoric females the menses are sometimes very tardy in their appearance, and every month the attempt to establish this function is attended with pain in the head, loins and back, chilliness, stomach sickness and bloating of the abdomen. Sometimes there is intolerance of light, or sound, and cerebral congestion amounting almost to apoplectic symptoms. The pulse is full and strong, the blood abundant and surcharged with red corpuscles. Such persons may be accustomed to luxurious living and there is evidently a predisposition to abnormal activity of the alimentary functions.

1594. **Treatment.** I may briefly suggest that the

hygienic requirements are, first, to engage in laborious physical exercise in order to expend the surplus of vitality, and second, to lessen the daily amount of food taken and use that which is light and unstimulating. We must also obviate the determination of blood to the head, by keeping it cool and the feet warm and establishing the flow of blood to the extremities. The volume of the circulation may be diminished by acting upon the natural outlets, as the skin, kidneys and bowels. The proper means and appliances for quickening the circulation of the blood are indicated, and friction upon the surface, bathing, the daily use of such active cathartics as my Purgative Pellets, and, finally, the use of some genial uterine stimulant, such as my Favorite Prescription, will generally prove successful in cases of amenorrhœa, resulting from plethora.

1595. **Retention and Suppression from Anæmia.** To describe the condition of the patient whose blood is low and robbed of the richness, warmth and bloom it once possessed when it kindled admiration and enthusiasm in others, is but to give a pen-picture of a numerous class of female invalids. It is sad to see beauty fading, vigor waning, and Bright's disease or wane consumption slowly wasting the blood and consuming the vital cells until the spirit can no longer dwell in its earthly abode and death claims the skeleton for dust.

1596. *Chronic Decline*, with its attendant anæmia (§ 772), may be induced by bad habits, destitution, or constitutional depravity. Sickly forms, wrecks of health, matriculates of disease and candidates for the graduation which death honors, address our senses on every side. All these subjects evidently once had a capital in life, sufficient (if properly and carefully husbanded) to comfortably afford them vital stamina and length of days. Alas! they have squandered their estate, perchance in idleness and luxurious living, or have wasted it in vanities and misdirected ambition. Having become bankrupts in health, there is necessarily a failure of the menstrual function, and then follows a *panic*. All the blame of the insolvency and general derangement, is unjustly attributed to the non-performance of the duties of the uterus. Thus this organ is altogether *dependent* upon the general health for its functional ability, yet oftentimes treatment is instituted to compel menstruation, regardless of the

condition of the system. Thus the enfeebled uterus is wrongfully held responsible for general disorder, because it ceases to act, when *by acting* it would further deplete the blood and thus materially contribute to the already existing chronic decline.

1597. No matter what are the causes of this decline, whether they be the follies of fashion, the effect of indolence, debility in consequence of insufficient food, perversion of nutrition by irregular habits, lack of exercise, or taking drastic medicines, the result is anæmia and amenorrhœa. Ah, in what enervating habits do many indulge! Let us describe a type of this class.

1598. The patient is an only daughter, the idol of her parents, who, in mistaken kindness, have stimulated her with every facility for mental improvement and graceful accomplishments. Her physical powers are exhausted by mental effort; she becomes pale and feeble, discouraged and heart-weary, and finds a solace in the old arm-chair which now rocks in rhythm with her own sluggish feelings. Rich food does not excite the appetite, but her disordered stomach loathes it. She has lost relish for intellectual efforts and enjoys the sensation of a yellow-covered pamphlet of fiction. The effort to entertain company only exhausts, and she thinks she is rather too *delicate* to ride out. She does not like to incur the *risk* of exposure to the open air. Mamma is afraid she might get cold, and eventually become a consumptive. Indeed, she "must have a physician right away." So the doctor comes. Let us suppose that this incident transpired thirty years ago, when there *was* a popular way of doctoring, although there are many fossilized physicians even at the present day, who advocate and practice the same old theories which were exploded more than a quarter of a century ago.

1599. The family attendant was an educated physician, whose practice, *secundem artem*, included the judicious employment of calomel, blisters and the lancet, which were regarded as indispensable to success. His arrival at the mansion was duly welcomed; with professional dignity he treads lightly the Brussels carpet and encounters the old arm-chair and its invalid occupant. He carefully investigates the case; ascertains that there is constipation, a feeble pulse, languor of the circulation, general debility and suppression. He advises with respect to the diet, hopes that the patient will soon get about, leaves a few

Sedlitz powders, several blue pills, an emmenagogue elixir, rails against quackery, refers to recent social events, dilates upon scientific discovery, and his presence and agreeable conversation serve as a pleasant reminiscence for our patient. His visits are repeated, medicines varied and the patient continues to decline.

1600. **Rational Treatment.** Let us leave behind the past and its shadows, and listen to the advice of modern science, which suggests more nutritious food, increased exercise, cleanliness, regular habits, hard beds and useful employment. The diet may be improved by animal broths, roasted meats, fresh beef, mutton, chicken or eggs, and the dress should be comfortable, warm and permit freedom of motion. The patient should indulge in amusing exercises, walking, swinging, riding, games of battledoor or croquet, traveling, singing, percussing the expanded chest or engage in healthful calisthenic exercises, (see the article on physical culture in this volume). The hygienic treatment of this form of amenorrhœa then consists in physical culture, the regular use of appropriate baths, and the regulation of the bowels, if costive, as suggested in this volume under the head of constipation.

The *medical* treatment should look to enriching the blood, improving nutrition, toning the generative organs and building up the health of the whole system. This requires the employment of uterine and general tonics and my Favorite Prescription, which is sold by druggists, happily combines the properties required. It improves digestion, enriches the blood, exercises a tonic and gently stimulating effect upon the uterus and ovaries, and thus promotes the function of menstruation. It is not a strong emmenagogue (§ 574), but operates slowly, yet surely, and in accordance with physiological laws, being eminently congenial in its effects upon the female system, and hence not liable to do harm. There is danger in employing active driving medicines, besides, no emmenagogue, however powerful, can establish the menstrual function so long as the system is in a debilitated condition and the blood be reduced. We must first secure the restorative effects of the Favorite Prescription by administering it regularly, in from one to two teaspoonful doses, three or four times a day for several weeks, and as the system is built up and those symptoms appear which indicate a return

of the menses, their visitation may be encouraged by the use of hot foot and sitz-baths and free doses of my Compound Extract of Smart-Weed. But the latter should only be used when symptoms of approaching menstruation are manifested. By following out this *rational* course of treatment, a soft flush will gradually take the place of the pallor of the cheeks, the appetite will return, the flesh come to drive away the ghost of the former self, sweet sleep to restore the body, while happy hopes will fill the mind with encouraging prospects, and the joyous life will gush out in social songs or scintillate in sparkling thoughts.

1601. **Acute Suppression of the Menses** may be caused by *vivid emotions*, as excessive joy, or by violent *excitement* of the *propensities*, as intense anger, sudden fright, fear, anxiety, etc. Suppression may result from sudden exposure to cold, immersion of the hands and feet in cold water, drinking cold water when the body is heated, sitting on the cold ground or damp grass, or from a burn or wound. It is not uncommon for women to labor in the heated wash-room, pounding, rubbing and wringing soiled linen, thereby overtaxing the delicate physical system, which has been compared to a "harp of a thousand strings," attuned most perfectly to all the harmonies of health. While feeling tired and jaded, all reeking in perspiration, they rinse and wring the clothes out of cold water, and hang them upon the line with arms bare, when the atmosphere is so freezing that the garments stiffen before they finish this part of the task. Is it any wonder that acute suppressions occur or that inflammations set in.

1602. The symptoms that naturally follow are quick pulse, hot skin, thirst, fever, headache, dizziness, and the inflammation may locate in the ovaries, uterus, lungs, bowels, brain or other parts. No matter what organs are attacked the menses are suppressed. The suppression can generally be attributed to an adequate cause, resulting in constitutional disturbance. The severity and duration of the attack and the power of the constitution to resist it, must determine the gravity of the consequences.

1603. **Treatment.** As acute suppression of the menses is due to derangement of the circulation of the blood, caused by taking cold, by violent excitement of the propensities or excessively

vivid emotional experience, the prominent indication is to secure its speedy equalization. Give a hot foot, a warm sitz, or the spirit vapor-bath and administer full doses of my Compound Extract of Smart-Weed, to produce free perspiration. Dr. Eberle, a very celebrated medical author says, that he used the Extract of Smart-Weed in twenty cases of Amenorrhœa, and affirms that "with no other remedy or mode of treatment have I been so successful as with this." My experience in the use of my Extract has been equally satisfactory. Should this treatment not promptly establish the function, my Favorite Prescription should be given three times a day until the system is invigorated, say for twenty-eight days, when the above course may be repeated and will generally succeed. Should the case be complicated with inflammation of the lungs, brain or other vital organs, manifesting alarming symptoms, the family physician should be called. The treatment must be active and suited to the indications of each particular case. When the disease becomes chronic, the active stage of symptoms having passed, and it continues to linger without making the desired improvement, all the means suggested for the treatment of suppression from anæmia should be employed and will be followed by the most gratifying results. It should be borne in mind however, when I have suggested any treatment in this volume, it is generally such as the family may institute, and does not by any means represent the variety or extent of the remedial resources which I employ when consulted in person or by letter. I refer my readers to only a few of the safe and reliable remedies which I have prepared and placed within their reach, and give them just such hygienic advice as I think will best subserve their interests.

DYSMENORRHOEA. (PAINFUL MENSTRUATION.)

1604. Dysmenorrhœa, from its Greek derivation, signifies *difficult monthly flow*, and is applied to menstruation when that function becomes painful and difficult. Menstruation, like other healthy operations of the body, should be painless, but too frequently it is the case, that discomfort and distress commence twenty-four hours before the catamenia appears, and continue with increasing pain, sickness at the stomach, and vomiting, until the patient has to take to the bed. When

the discharge does occur, instantaneous relief is sometimes obtained and the patient suffers no more during that menstrual period. With others, the commencement of the function is painless, but from six to twenty-four hours after, the flow is arrested and the patient then experiences acute suffering. Pain may then be felt in the back, loins and down the thighs. Sometimes it is of a lancinating, neuralgic kind, at others, it is more like colic. Frequently the distress causes lassitude, fever, general uneasiness and a sense of lethargy. There are those who suffer more or less during the entire time of the flow, while the distress of others terminates at the time when a membranous cast is expelled. For convenience of description, dysmenorrhœa has been divided into the following varieties, viz: *Neuralgic*, *Congestive*, *Inflammatory*, *Membranous* and *Obstructive*.

1605. *The neuralgic variety* of dysmenorrhœa, sometimes also called *spasmodic* or *idiopathic*, occurs (1), where there is excessive sensibility of the ovaries and uterine nerves, which sympathetically *respond*, especially to cutaneous, biliary and sexual irritation, and (2) when ovarian or uterine irritation is communicated to distant nerve centres, as, for example, the stomach or brain. In the first class, comprising usually lean persons of an encephalic temperament, whatever disorders the functions of the general system, instantaneously reflects upon the ovaries and uterine nerves, and the menstrual function is correspondingly disturbed, and instead of a painless flow, it becomes spasmodic, paroxysmal and distressing. In the second class, which includes those who are plethoric in their tendencies, the ovarian and uterine nerves seem themselves to be the origin and centre of irritation, causing indescribable pain. The agony may be so severe as to be almost intolerable, and I have seen some women who affirmed that the severity of labor pains was not as great as that from this cause. Mrs. T., for eleven years, suffered thus, and then became a mother, and has ever asserted that her periodic suffering was far more intense than the pain experienced during her confinement. These neuralgic pains fly upon the *tractus* of nerves to different organs, and capriciously dart from point to point with marvelous celerity, producing nausea, headache and delirium. I remember being called several years ago to see a Miss G., whom I found writhing in intense agony, rolling

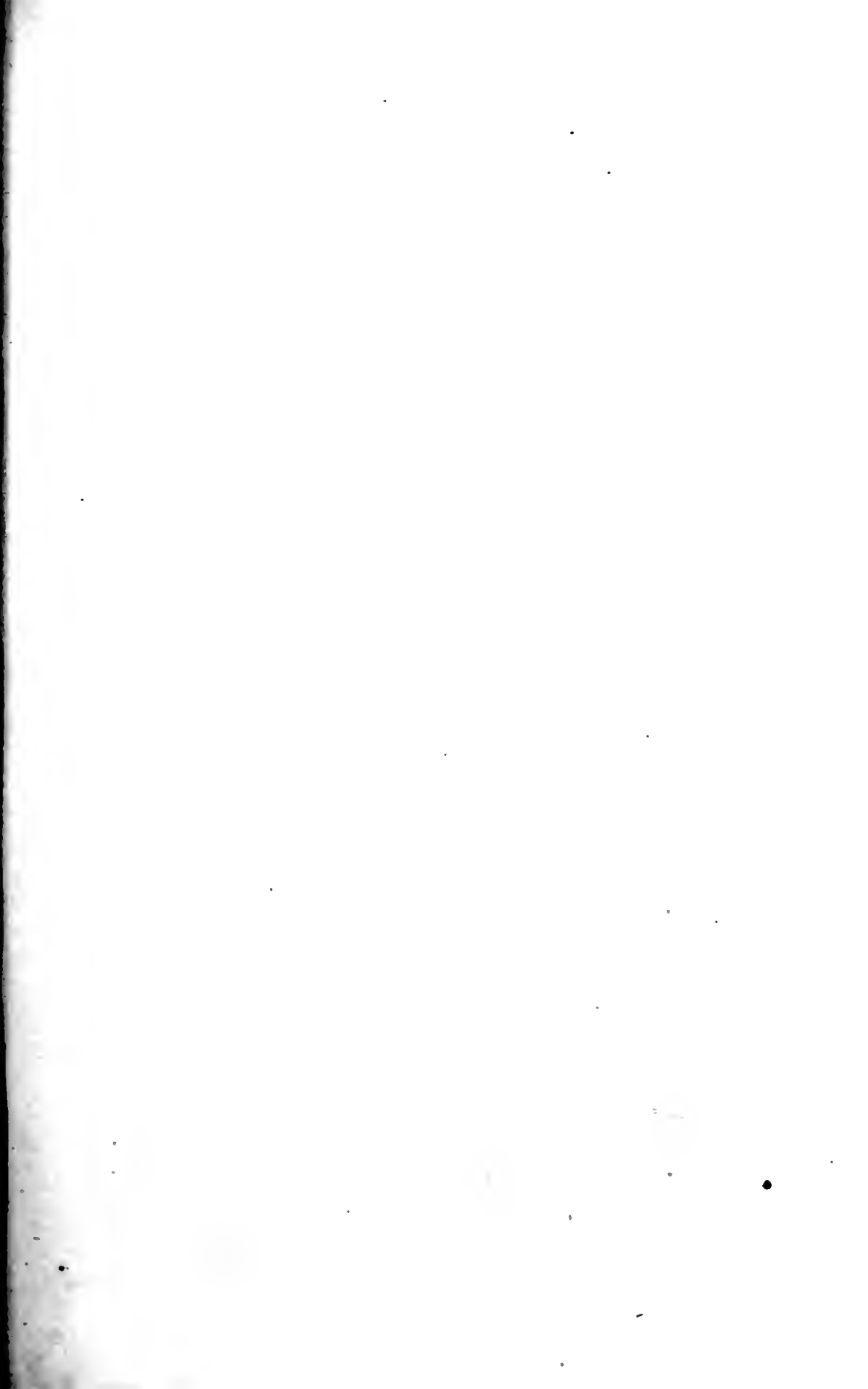


Plate IV.

Fig. 22.

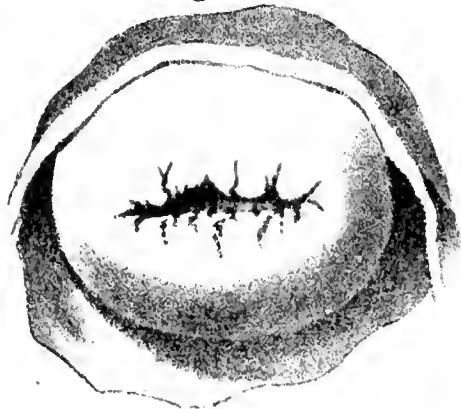


Fig. 21



Fig. 24

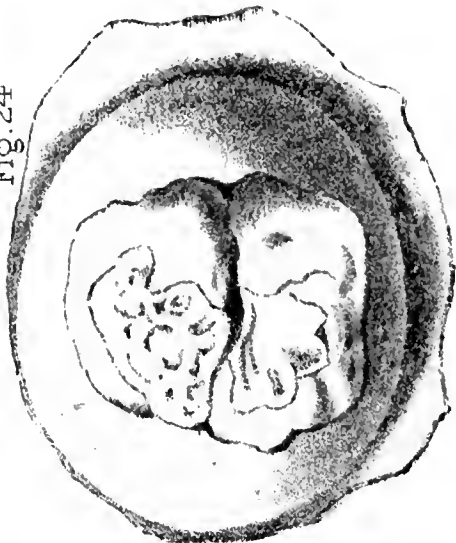


Fig. 23

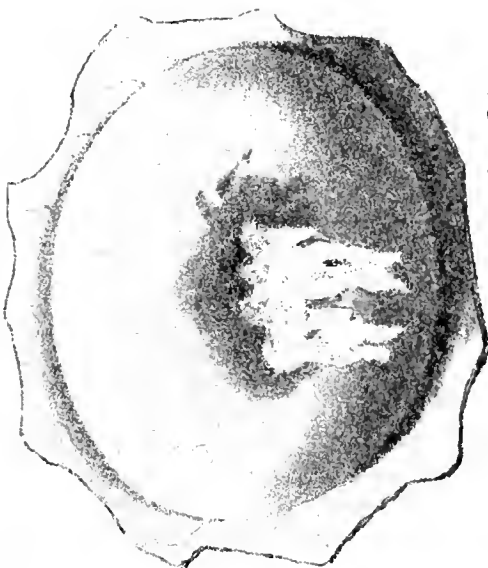


Fig. 26

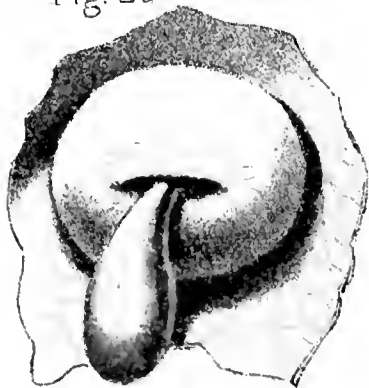
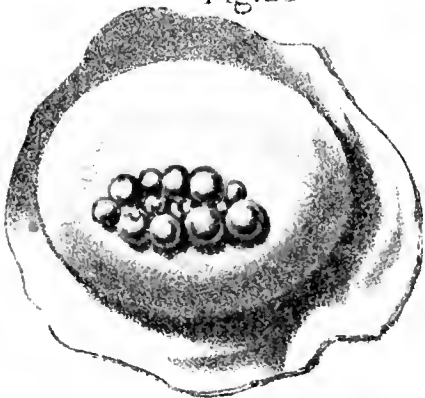


Fig. 25



about on the bed in a delirium of pain, insensible to everything but her excruciating torment. I immediately gave her a strong anodyne sedative and left. In thirty minutes, I was told, she partially aroused from her semi-delirious condition and very curtly inquired, "Where's the doctor?" "Gone," was the laconic reply, when she instantly and gratefully responded, "*I could kiss his foot!*" When relief from such terrible neuralgic torture is experienced, we may allow sufficient latitude for a thankful expression.

1606. **In the congestive variety** of dysmenorrhœa the menstrual period may be ushered in without pain; after a few hours the pulse becomes stronger and more rapid, the skin grows hot and dry, the menses stop, there is uneasiness, restlessness and severe pelvic pains. Evidently the mucous membranes of the Fallopian tubes and uterus have become congested and the pain results from the arrest of the functional process—the exudation of blood.

1607. **The causes** are plethora, exposure to cold, excitement of the emotions or passions, morbid condition of the blood, and sometimes congestion arises in consequence of displacement of the uterus.

1608. **In the inflammatory variety** the mucous membrane of the uterus seems to be the seat of irritation. The blood flows into the capillary vessels in greater abundance than is natural, and those vessels become overdilated and enfeebled, and so altered in their sensibility as to produce local excitement and pain. It may be associated with inflammation of the ovaries, peritoneum or bladder. Upon the return of the menses, there is a dull, heavy, fixed pain in the pelvis, and it continues until the period is completed. There is generally tenderness of the uterus, and also leucorrhœa, during the intervals between each monthly flow.

1609. **In the membranous variety** of dysmenorrhœa, the entire mucous membrane, which lines the cavity of the uterus, in consequence of some morbid process, is gradually detached and expelled at the menstrual period.

1610. **Symptoms.** There are steady pains at the commencement of the menstrual flow, but they increase in violence and become decidedly expulsive. The mouth of the uterus

gradually dilates and finally the membrane is forced out of the uterus, attended with a slight flow of blood and entire subsidence of the pain.

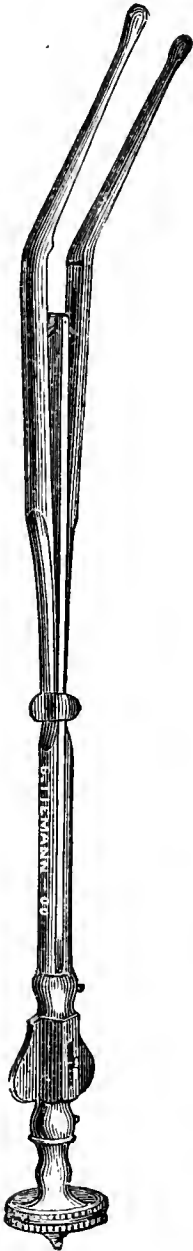
1611. **The treatment** in all the preceding varieties of dysmenorrhœa should be directed to determine the circulation of the blood to the surface and increase the perspiratory functions. Congestion and inflammation of the internal organs are generally induced by exposure to cold or from insufficient clothing. Sometimes they follow from neglect of the skin which is not kept clean and its excretory function not encouraged by warm clothing. The domestic treatment at the monthly crisis should be commenced by the administration of hot foot, and sitz-baths, after which the patient should be warmly covered in bed and bottles of hot water applied to the extremities, back and thighs. My Compound Extract of Smart-Weed should be given in full doses frequently repeated, to secure its diaphoretic, emmenagogue and anodyne effects, which, in this painful affection, are unsurpassed. For the radical cure of this disease, whether of a congestive, inflammatory or neuralgic character, my Favorite Prescription, which is sold by druggists, is a pleasant and specific remedy that will most speedily correct the abnormal condition that produces the trouble, and thereby obviate the necessity of passing this terrible ordeal at each monthly period. The patient should take two teaspoonfuls of the medicine three times a day and keep up its use in these doses for weeks. Many times one month will suffice to cure, but in most cases a longer season is required. In the end the suffering patient will not be disappointed, but will become a new being, ready for life, its enjoyments and duties. The bowels must be kept regular throughout the treatment by the use of my Purgative Pellets, if necessary. A hand, or sponge-bath should be used daily to keep the skin active, and followed with brisk rubbing of the surface with a rough towel or flesh-brush. A wet sheet pack (see ¶650) will unburthen the pores of the skin and invite the blood into the minute capillaries of the surface and thus prove of great benefit. It should be repeated after an interval of seven days, but must be omitted if near the approach of a menstrual period. The clothing must be warm, to protect the system from temperamental changes; especially should every precaution be

taken to keep the feet dry and warm (see ¶ 433). The patient should walk in the open air, and the distance should be regularly lengthened at each succeeding walk. If the course of treatment which I have suggested be faithfully pursued, a permanent cure will be effected.

1612. **In the obstructive variety** of dysmenorrhœa, some organic impediment hinders the exit of the menstrual blood from the uterus, which consequently becomes distended and painful. The pain may be constant, but is most acute when the uterus makes spasmodic efforts to discharge the menstrual blood. If these efforts prove successful, there is an interval of relief. Flexion, or version of the womb may produce partial occlusion of the canal of the neck of the uterus, thus preventing the free flow of the menstrual fluid through it. Tumors, located in the body or neck of the uterus, often cause obstruction to the free discharge of the menses. Imperforate hymen and vaginal stricture also sometimes cause obstruction and give rise to painful menstruation. As these several abnormal conditions and diseases will be treated of elsewhere in this volume, I omit their further consideration here.

1613. Partial adhesion of the walls of the neck of the womb may result from inflammation of the mucous lining, and prevent a free and easy exit of the menstrual fluid. In many cases the contracted and narrowed condition of the canal of the cervix seems to be a congenital deformity, for we can trace it to no perceptible cause. It is also true that contraction and partial, or even complete stricture of the cervix (neck of the womb) often results from the improper application of strong caustics to this passage, by incompetent and ignorant surgeons. Every person has observed the contraction of tissue caused by a severe burn, often producing such a distortion of the injured part as to disfigure the body for life. A similar result is produced when the neck of the womb is burned with strong caustics. The tissues are destroyed, and as the parts heal, the deeper-seated tissues firmly contract, forming a hard, unyielding cicatrix (scar), thus constricting the neck of the womb through which the menses pass into the vagina.

1614. **Treatment.** From the nature of this malady, it will readily be seen that no medical treatment can effect a radical

Fig. 171.

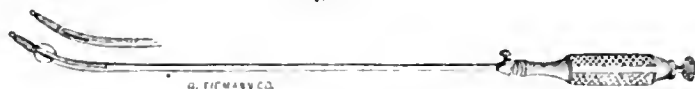
THE UTERINE DILATOR.

This instrument is introduced into the canal of the uterine neck with its blades closed. By means of the thumb screw the blades are then separated (as shown in this illustration) the cervical canal being thereby dilated to the required extent.

cure. We must therefore resort to surgery. In a small proportion of cases, the stricture may be cured by repeated endeavors to dilate the passage and thus overcome its constriction. This may be accomplished by using a very smooth probe which is fine at the point, but increases in size, so that its introduction will widen and expand the orifice and canal. The stricture may be overcome in many cases by using different sized probes. In some instances I have employed the uterine dilator represented by Fig. 171. I have also introduced sea-tangle and sponge-tents into the neck of the womb, and allowed them to remain until they expanded by absorbing moisture from the surrounding tissues. The latter process is simple, and in many cases preferable. By means of a speculum (see Figs. 180 and 181) the mouth of the womb is brought into view, and the surgeon seizes a small tent with a pair of forceps and gently presses it into the neck of the womb, where it is left to expand and thus dilate the passage. If there seem to be a persistent disposition of the circular fibers of the cervix to contract, and thus close the canal, a surgical operation will be necessary to insure permanent relief. In performing this operation I use a cutting instrument called the hysterotome (see Figs. 172 and 173). By the use of this instrument, the cervical canal is enlarged by an incision of the tissues. The operation is but slightly painful, and, in the hands of a competent surgeon, is perfectly safe. I have operated in a very large number of cases and have never known any alarming or dangerous symptoms to result. After the incision, a small roll of cotton, thoroughly saturated with glycerine, is applied to the incised parts, and a larger roll is introduced into the vagina. The second day after the operation, the cotton is removed, the edges of the wound

separated by a uterine sound (a kind of probe) and a tent introduced into the cervix, and allowed to remain, so that it will expand and thus open the wound to its fullest extent. This

Fig. 172.

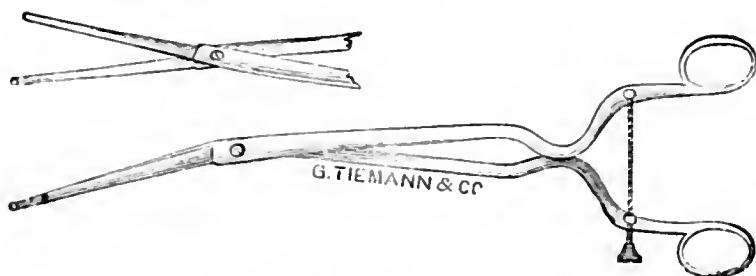


WHITE'S HYSTEROTOME.

In operating, this instrument is introduced into the canal of the neck of the womb, when a thumb screw in the end of the handle is turned by which a small blade is thrown out from each side, and as the instrument is withdrawn from the canal an incision is made on each side, thus enlarging the passage. The upper figure illustrates the instrument closed, ready for introduction; the lower one, with the blades projected, for cutting.

treatment must be thoroughly applied, and repeated every alternate day until the incised parts are perfectly healed.

Fig. 173.



STÖHLMAN'S HYSTEROTOME.

This instrument has two cutting blades which shut past each other, as seen in the lower figure, so as not to cut when introduced into the canal of the uterine neck. After introduction, the cutting blades are separated, as shown in the upper figure, the extent of the incision being regulated by the thumb screw attached to the handles, as represented in the lower figure.

CASES TREATED.

1615. **Case I.** Miss B., a teacher, aged twenty-five, applied to me for relief from Dysmenorrhœa, from which she had suffered at every menstrual period for several years. The pain was so severe that she had been accustomed to have large quantities of morphia injected into her arm. By this means she had obtained a slight, but temporary relief. An examination proved that the cause of her disease was a severe stricture of the neck of the womb. I performed the operation referred to above, and applied the proper after-treatment for three weeks, at the end of which time she menstruated freely and without suffering the least pain.

Case II. Mrs. D., aged thirty-eight, had suffered severely from Dysmenorrhœa for seventeen years. There was extreme tenderness over the region of the womb, and an intense irritability of the vagina and uterus. She had been treated by many physicians, but had obtained no relief. I instituted a careful examination, and found that the normal discharge of the menses was obstructed by a severe stricture of the cervix. I performed the operation indicated, and pursued the requisite course of after-treatment. At the end of three weeks she menstruated freely, but experienced considerable pain, owing to the excessive morbid sensibility of the uterus, caused by the long continued obstruction. A course of appropriate constitutional treatment served to render the cure complete.

Case III. Mrs. G., aged twenty-nine, applied to me for relief from Dysmenorrhœa. She had been treated by her family physician, but received no benefit. She had been married eight years and was sterile, yet both her husband and herself desired offspring. I discovered the cause of painful menstruation to be a stricture of the cervix, and expressed the opinion that if this abnormal condition were remedied, she could conceive and bear children. The treatment above indicated was successfully applied, and in due time my prophesy in regard to pregnancy was fulfilled.

I might, from the records of the World's Dispensary, add to this list of cases almost indefinitely, but I have noticed enough to illustrate my treatment of such cases.

MENORRHAGIA. (PROFUSE MENSTRUATION.)

1616. The word *Menorrhagia*, which is of Greek derivation, literally means *monthly breaking away*, and is employed to designate profuse menstruation. This disorder must not be confounded with those hemorrhages which are not periodical, and are due to other causes. The term *Menorrhagia* is restricted to an immoderate monthly flow. The menstrual flow may occur too often, continue too long, or be too profuse. It induces a feeble pulse, cold extremities, weak respiration, general debility, and may occur in opposite states of the system; *i. e.*, in women who have a plethoric and robust habit, or those of flaccid muscles and bloodless features. When the menstrual discharge is

natural, it is so gradual that by mixing with the vaginal secretions it is prevented from coagulating, while in this disease, clots are many times formed.

1617. **Symptoms.** In women of a *plethoric* habit, it is ushered in by itching and heat in the vagina, pain and a feeling of weight in the loins and lower part of the abdomen, and, at times, the breasts become hot and painful. There is considerable thirst, headache, and giddiness. At last, the blood appears and flows profusely, and all the violent symptoms at once subside. The rest of the period is marked by an inordinate flow, leaving the system weak from the loss of blood. It oftener occurs, however, in persons who are naturally weak and delicate, in which case the periods are more frequent and continue longer, and after a time they are renewed by any bodily exertion or mental emotion, so that a constant drain exists. If the flow of blood is not continuous, leucorrhœa intervenes. The patient gradually loses strength and becomes languid, her face is pale and usually bloated, livid circles appear around the eyes, the appetite is impaired, the bowels are constipated, and the feet and ankles swollen. Lack of blood in the brain is indicated by headache, ringing in the ears, and dizziness. The patient is nervous and irritable, being disturbed by the slightest noise, and the heart palpitates after the least exertion.

1618. **Causes.** The *first* form is caused by overeating rich and highly-seasoned food, drinking wine, porter, ale, or beer, want of exercise—in brief, whatever induces plethora; the *second* results from an insufficient or poor diet, leucorrhœa, frequent abortions, want of ventilation, inherent feebleness, and whatever depresses the vital powers. Either form may be due to syphilitic taints, excessive sexual indulgence, accidents of pregnancy, or organic diseases of the womb. The morbid affections of the womb most likely to induce menorrhagia, are granular ulceration of its mouth and neck, fungous degeneration of its lining membrane, and tumors within that organ. As these subjects will be severally considered hereafter, I will here dismiss them with this simple notice.

1619. Profuse menstruation is very prone to occur in young women of a lymphatic temperament, whose organs are sleazy in texture (destitute of constructive energy and cohesive

properties). The blood is not so highly organized as it is in the vital temperaments; consequently it is more lymph-like, and more readily exudes through the membranes.

1620. **Treatment.** To control the excessive flow, the patient should remain in her bed, and assume the recumbent position until the period is passed. If circumstances prevent strict compliance with this rule, it should be observed as nearly as possible. Warmth should be applied to the feet, and cold cloths, which must be removed as soon as they become warm by the heat of the body, should be repeatedly placed upon the back and abdomen. A strong tea made from cinnamon bark, or witch-hazel (§ 518) leaves or bark, taken freely, will prove very efficacious in checking the flow. Another valuable remedy for arresting menorrhagia is an infusion of Canada fleabane (§ 522); or the oil of this plant may be administered in doses of from five to ten drops on sugar. Gallic acid (§ 524) is also a good styptic to employ in these cases. Where there is febrile excitement, a hard pulse, frequent and throbbing, and where there is headache, thirst, parched lips, hot and dry skin, as is frequently the case in the sanguine temperament, then menorrhagia is due to an augmented action of the heart and arteries, and the indication of treatment is to diminish vascular action. This may be temporarily accomplished by the use of veratrum (§ 597), which should be continued until the flow is sufficiently diminished.

1621. The means already suggested will generally prove effective in controlling the inordinate flow at the time. We must then adopt treatment that will produce permanent relief. The condition of the skin, kidneys, and bowels, requires attention, and noxious elements should not be retained in the system. To give tone to the weakened organ (the womb), I know of nothing more specific in its effects than my Favorite Prescription, which is sold by druggists. It should be taken continuously, for weeks, in order to fully correct the extremely weakened condition of that organ. It also aids nutrition, and thus tones the general system, so that in the form of profuse menstruation, resulting from debility, the patient is strengthened, her blood enriched, and her nervousness quieted, which constitutes the necessary treatment to make the cure permanent.

1622. As women approach the critical age, and menstruation ceases, if they be anæmic, their condition is pitiable. This period is popularly denominated the *turn of life*. Under favorable circumstances, the vitality is decidedly enhanced and the decline of this function is attended with a revival of the bodily powers. But when this crisis has been anticipated by excessive labor, when intemperance or excesses of any kind have deranged the bodily functions and perverted nutrition, when the mind has been long and deeply depressed, or when the insidious progress of disease of the heart, liver, or other important organs, occurs in consequence of irregularities of living, then there is danger of congestion of the uterus and a protracted and profuse menstrual flow, which favors a decline.

1623. The treatment of this form of menorrhagia does not differ from that already suggested. The diet should be light and nourishing, and daily exercise, walking, riding, change of air and scenery, all will contribute to restoration. Especial attention should be directed to the condition of the bowels and liver. If the latter be deranged, my Golden Medical Discovery will be a most efficacious remedy. When there is a diminution of vital force, resulting in impaired nutrition and disorders of the blood, an alterative is required which will insensibly and gradually restore activity by removing the causes of derangement. Impairment of nutrition is very frequently associated with functional or organic disease of the liver, and curative measures consist of the use of alteratives, friction baths, exercise, nutritive diet, diversion of the mind, etc. Whenever innutrition depends upon depravation of the blood or torpor of any of the secretory organs, my Golden Medical Discovery will prove to be an invaluable remedial agent, for it is an alterative and at the same time a blood restorative. My Favorite Prescription regulates the menstrual function by toning the fibers of the mucous membrane and restraining the escape of the menses from the orifices of the blood-vessels. While the diet should be nourishing, consisting of wild game, mutton, chicken, wine, etc., the patient must not debilitate the stomach by the use of strong tea or coffee. The circulation of the blood must be quickened by riding, walking, exposure to sunlight, and fresh air. The patient ought to engage in some light occupation, in which the mind will be

constantly as well as agreeably employed, but not overtaxed. By pursuing this course of treatment, invalids suffering from menorrhagia may be permanently restored to health and usefulness.

THE TURN OF LIFE. (CESSATION OF THE MENSES.)

1624. Menstruation commonly occurs in the human female at regular monthly intervals, during a period of about thirty years. The time for its cessation depends somewhat upon the date of its first appearance. In the temperate zones, it commences at about the fifteenth year, and consequently should terminate at the forty-fifth year. Instances are common, however, where it has been prolonged until the fiftieth and even the fifty-fifth year. In warm climates, it commences and terminates at an earlier age.

1625. As women approach the critical period of life, if the general health and habits be good, the discharge may gradually diminish, and at length totally disappear, without producing any particular inconvenience; but this seldom happens. It is more customary for the discharge to be entirely absent for six or seven weeks, and when it does return, to be more copious than usual. In some cases the flow is not only too profuse, but too frequent. There may follow an interval of months, and when the menses return, they are very pale and deficient in quantity.

1626. The fluctuations of this function occasion irregularities and disturbances of the general health. When the flow of blood is diverted from the uterus, it is liable to be directed to the head or some other part of the body. In fact, there appears to be constitutional agitation, and disorders of all the organs. Perhaps one reason for calling this a critical period is, that if there be a morbid tendency in the system—a disposition to develop tumors of the breast or uterus—these are very liable to make rapid progress at this time, since they are not relieved by the customary local exudation of blood. It is a time favorable to the awakening of latent disorder and morbid growths, for by the decline of the menstrual function, the uterus is not so capable of resisting vitiating influences.

1627. There is greater liability to irritation of the bladder and rectum, and the menstrual flow may be superseded by a

white, acrid discharge, caused by an inflammation of the mucous membrane of the vagina. So that if the system be not enfeebled by excessive losses of blood, debility may result from a continued irritation of the uterine organs, and cause the morbid discharge. The nervous system sympathetically responds, becoming exceedingly sensitive and irritable, and thus implicating in this disorder every bodily organ. In some constitutions, the change of any habit is almost impossible, particularly if it be improperly acquired, or detrimental to health; and so I have sometimes thought respecting this function, that the more it has been abused and perverted during the time of its natural activity, the greater the constitutional disturbance it occasions when it ceases.

1628. **Treatment.** Hygiene enjoins regularity in all the habits of life. Women are too apt to approach this important period without due care and consideration. When the physical system is about to suspend a function, it is worse than folly to endeavor to perform the labor or assume the responsibilities which were allowable when the constitution was more robust.

1629. How the duties of each day and hour weigh upon the energies of the mother! What intense solicitude and yearning she experiences! What prayers does she offer to the loving Father of all children that He may safely guide and bless her own! How unselfish is that mother, who each day works steadily and faithfully for others, realizing accountability, and yet conscious of the hidden dangers that lurk around her pathway! With confiding faith and love, she commends the interests of her children to Him who doeth all things well. She anticipates the wants of her family and strives to supply the desired comforts, thus wasting her strength in the labors prompted by her loving nature. Would it not be a greater comfort to those children to have the counsel and guidance of their dear mother in later years, than to have the bitter reflection that she sacrificed her health and life for their gratification?

1630. Unconsciously, perhaps, but none the less certainly, do women enter upon this period regardless of the care they ought to bestow upon themselves. Without sufficient forethought or an understanding of the functional changes taking place, they

overtax their strength, until, by continuous exertion, they break down under those labors which, to persons of their age, are excessive and injurious. Is it strange, when woman has thus exhausted her energies, when her body trembles with fatigue and her mind is agitated with responsibilities, that the menses capriciously return or the uterus is unable to withstand congestion, and capillary hemorrhage becomes excessive? If the physical system had not been thus exhausted, it would have exercised its powers for the conservation of health and strength. It is better to be forewarned of the ills to which we are liable, and fortify ourselves against them, rather than squander the strength intended for personal preservation. Let every woman, and especially every *mother*, consider her situation and properly prepare for that grand climacteric, which so materially influences her future health and life.

1631. The general health should be carefully preserved by those exercises which will equalize the circulation of the blood, and the regular action of the bowels should be promoted by the use of those articles of diet which contribute to this end. Relieve the mind of responsibility, keep the skin clean, and enrich the blood with tonics and alteratives. For the latter purpose use my Favorite Prescription and Golden Medical Discovery. If these remedies fail, seek professional advice. A careful regulation of the habits, strict attention to the requirements of the system, and the use of tonic medicines, will very frequently render the employment of a physician entirely unnecessary.

LEUCORRHŒA. (WHITES.)

1632. Leucorrhœa is the symptomatic manifestation of some uterine or vaginal affection, vulgarly called "whites." I say *symptomatic*, for the white or yellowish discharge, which we term leucorrhœa, is not a disease, but a symptom of some uterine or vaginal disorder. We call it a *white* discharge to distinguish it from the menses and uterine hemorrhages. It varies, however, in color and consistency from a white glairy mucus to a yellow or greenish, purulent, fœtid matter. Sometimes it has a curdled appearance, at others it is of the consistency of cream. Leucorrhœa is the most common symptom of uterine disorder, and there are few females who are not affected by it at some

period of life. It may originate either in the vagina or uterus, and it is accordingly termed either vaginal or uterine leucorrhœa. The nature of leucorrhœa is analogous to that of nasal catarrh. In a healthy state the lining membrane of the genital organs secretes sufficient mucus to moisten them; but if the mucous membrane be temporarily congested or inflamed, the secretion becomes profuse, irritating, and offensive. Vaginal and uterine leucorrhœa are essentially different in character, the former being an acid, and the latter an alkaline secretion, and, while the first is a creamy, purulent fluid, the latter is thick and ropy like the white of an egg. In fact the latter discharge is rich in albuminous matter and blood-corpuscles; hence its great debilitating effect upon the system, and if not promptly arrested it is likely to produce *Vaginitis*, *Pruritus Vulvæ*, or *Vulvitis*.

1633. (1.) *Vaginitis* is indicated by intense inflammation of the mucous membrane of the vagina. When this affection is present the patient will experience a sense of burning heat, aching and weight in the region of the vagina, violent and throbbing pains in the pelvis, and the discharge will be profuse and very offensive. There will also be a frequent desire to urinate, and the passage of the urine will cause a sensation of scalding.

1634. (2.) *Pruritus Vulvæ*. The discharge irritates the nerves of the external genital parts, thus producing an almost unendurable itching. Scratching or rubbing the parts only aggravates the affection. The patient is tormented night and day, is deprived of sleep, and naturally becomes despondent. *Pruritus vulvæ*, in its severest forms, is often developed when the discharge is scarcely noticeable. It is the most common sequence or accompaniment of leucorrhœa.

1635. (3.) *Vulvitis*. This term indicates an inflammation of the lining membrane of the external genital parts. Sometimes the inflammation extends to the deeper tissues, causing great pain and even suppuration, resulting in the formation of an abscess. The attack is indicated by redness, swelling, and a feverish state of the affected parts, which is quickly followed by a profuse flow of yellow pus (matter), and in some instances small ulcers are formed on the affected parts.

1636. **Symptoms.** The sufferer from leucorrhœa becomes pale and emaciated, the eyes look dull and heavy, the functions of the skin, stomach, and bowels, become deranged, the circulation is unequal, the feet are cold, more or less pain in the head is experienced, sometimes accompanied with dizziness; palpitation is common, and as the disease progresses the blood becomes impoverished, the feet and ankles are swollen, the mind is apprehensive and melancholy, and very frequently the function of generation is injured, resulting in complete sterility. Exercise produces pain in the small of the back and the lower portion of the spine, and, owing to a relaxation of the vaginal walls, the womb falls far below its natural position, or turns in various directions, according as the weight above may rest upon it. Ulcers are apt to appear upon the mouth of the womb, the matter from which tinges the discharge and stains the linen. Hysteria is often an attendant of this disease.

1637. **Causes.** The immediate cause of leucorrhœa is either congestion or inflammation of the mucous membrane of the vagina or womb, or both. The exciting causes are numerous. Among others, deranged menstruation, prolonged nursing of children, pregnancy, abortions, excessive indulgence in sexual intercourse, uncleanness, piles, uterine ulcers, and displacements of the womb, are the most common. In brief, it usually accompanies every uterine disorder which vitiates and reduces the system. During childhood, particularly in scrofulous children, discharges from the vagina are not unfrequent, owing to worms or other intestinal irritation.

Among the organic causes of leucorrhœa are ulceration of the mouth or neck of the womb and tumors. These will be considered hereafter.

1638. **Treatment.** I have dwelt upon leucorrhœa because of its prevalence, and in order to exhibit the various forms it may assume. These reasons long ago prompted me to investigate it; and, ascertaining the derangement to consist in a relaxation of the walls of the vagina, attendant upon depressed vitality, for many years I experimented with various agencies to find those that would exercise specific properties in restoring the tissues involved to a natural condition, thereby arresting the abnormal discharge. My efforts in that direction have been

very successful, and my expectations more than realized. The treatment which I shall recommend is rational, based upon the pathological conditions of the disease, and has been attended with the greatest success.

It embraces the use of those general restoratives and specific uterine tonics, so harmoniously combined in my Favorite Prescription, a remedy which has achieved unparalleled success in the cure of this disorder, and won the highest praise from thousands of grateful women. In many cases it is well to accompany its use with alterative treatment, for which my Golden Medical Discovery will be found especially effective. It is an absurd practice to arrest the discharge by astringent injections *alone*. The weak and lax walls of the vagina, as well as the other tissues of the system, require strength, and this can be gained only by the use of general and special tonics. Appropriate injections as *auxiliary* treatment will very much *assist* in the cure. My Favorite Prescription is a special tonic for the affected parts, and my Golden Medical Discovery is the best general alterative of which I have any knowledge. They may be taken in alternate doses every day. If the patient be very anæmic (bloodless) and pale, one drachm of the carbonate, or two drachms of the citrate or pyrophosphate of iron may be advantageously added to each bottle of the Favorite Prescription. If the carbonate be employed, as it is insoluble, the bottle must be well shaken each time before using. The functions of the skin should be kept active by frequent baths, and the patient, if able, should walk or ride in the open air, and freely expose herself to the sunshine. If the invalid be too weak to exercise much, she should go out in warm weather and sit in the open air. Sunshine is no less important in maintaining animal, than in supporting vegetable growth and health. The human being, like the plant, sickens and grows pale, weak, and tender, if secluded from the sunlight. The apartments occupied should be thoroughly ventilated. Many women are sickly and feeble because they live in badly-ventilated and overheated rooms.

1639. I cannot too strongly urge in this, as in all other chronic diseases peculiar to women, that the bowels be kept regular. Frequent, but small doses of my Pleasant Purgative Pellets will prove most beneficial. If the vaginal passage be

tender and irritable, an infusion of slippery-elm bark will be very soothing, and may be used freely with a vaginal syringe. Whatever injection is employed, it should be preceded by the free use of Castile-soap and warm water, to thoroughly cleanse the parts. One part of glycerine to six parts of water is a soothing lotion when there is much tenderness, heat, and pain, in the vagina. If there be no great tenderness in the vagina, or the acute inflammatory symptoms have yielded to the lotions already suggested, then a more tonic and astringent injection should be employed. An infusion of Peruvian bark, witch-hazel leaves or bark, or either of these combined with golden-seal root, will make a very valuable lotion to be employed. A teaspoonful of tartaric acid in a pint of warm water is a *specific*, in some cases acting like magic. Dr. Sage's Catarrh Remedy is as much a specific in some cases of leucorrhœa as it is for nasal catarrh. To render it more astringent, however, a gill or two of oak-bark tea, or of the infusion of Peruvian bark or witch-hazel, may be added to each pint of the liquid. This will improve its efficacy in cases where the discharge is very profuse and resists the simpler lotions. Whatever lotion is employed, *always use it warm*.

1640. If *Pruritus* be also a symptom, the itching will readily yield if the parts be cleansed with Castile or other fine soap and warm water, followed by the application of a compound composed of two ounces of glycerine, one ounce of rose-water, and one drachm of sulphite (not sulphate) of soda; or, for the sulphite of soda, two drachms of borax may be substituted. The following lotion is a good one to relieve pruritus: Take of sugar of lead two drachms, carbolic acid half a drachm, laudanum four ounces, glycerine four ounces, water four pints; mix. This may be applied to the itching parts, and also injected into the vagina.

1641. **How to use Vaginal Injections.** The effect of vaginal injections depends very much upon the manner in which they are applied. A *large-sized* glass syringe, or, what is still better, a pump syringe (largest size) should be used. The latter instrument is preferable, because the patient can use it conveniently without an assistant, and the required amount of fluid can be injected without having to remove and re-insert

it. These injections should be applied while lying down, the hips being well elevated on bolsters or pillows. After introducing the syringe, which should be pressed up as far as possible without causing pain, so as to bring the end of the tube in contact with the os uteri (mouth of the womb, see illustration on page 217), the external parts should be firmly compressed around the instrument with a large napkin or towel. The fluid (*which should not be less than two ounces*) should then be injected and *held in contact with the walls of the vaginal canal for at least five minutes*. If these precautions are not observed, the syringe not being introduced far enough, or being used in a standing or sitting posture, the injected fluid will come in contact with only a small portion of the diseased parts, and *do little or no good*. Warm water should be plentifully used with the syringe, according to the above instructions, to cleanse the parts of all acrid, irritating, and offensive excretions, previous to using the medicated fluids. It is necessary to warn the patient that sexual intercourse *must be entirely avoided* while she is under treatment for any disease of the genital organs, for it is generally impossible to effect a cure when this rule is not strictly observed.

STERILITY. (BARRENNESS.)

1642. Real sentiment and interest centre in fecundity, since the desires and happiness of mankind are consummated in marriage and procreation. How dreary would life be without love, companionship, and the family! How precious are the ties that bind our hearts to father, mother, daughter, and son! The love of children is innate in the heart of every true man and woman. Each child born supplements the lives of its parents with new interests, awakens tender concern, and unites their sympathies with its young life.

1643. How dreary is the thought that one may attain a ripe old age with neither son nor daughter to smooth the decline of life, or sorrow for his departure! How many women desire a *first-born* of love—the idol of their waiting hearts—a soul, which shall be begotten within, clothed with their own nature, and yet immortal! It is a natural instinct, this yearning of the heart for offspring; and yet little is said upon this subject, in which so

much is experienced. All that is beautiful and lovely in woman, finds its *ultimatum* in motherhood. And what earthly being do we love so devotedly as mother?

1644. Men and women exhibit but little concern, mere idle curiosity perhaps, in this subject, unless, perchance, there be no evidence of their own reproductive powers. If, however, these appear to be deficient, then few topics are more deeply interesting or investigated with greater personal solicitude. Such persons will seldom submit their condition to the family physician, for it is a delicate subject involving personal considerations, and therefore they prefer to consult with one who cannot connect their unfortunate situation with any of the occurrences which enter into the history of their lives. This is very natural and sometimes the only way to keep private matters profoundly secret. Being widely known as a specialist, devoting my individual attention to chronic affections, and therefore having unusual facilities for the investigation and management of such cases, I have been applied to in innumerable instances, to ascertain the causes of barrenness and effect their removal.

As impotence of the male will be considered in a succeeding part of this volume, I shall here confine myself to the consideration of sterility resulting from disorders or defects of the female system.

It is admitted that the question of a woman's sterility is practically decided in the first three years of married life, for statistics show that less than ten in a hundred, who do not indicate their fertility in the first three years of wedlock, ever bear children. And yet I have treated many who gave no evidence of fertility for a much longer period of married life, and afterwards gave birth to children. We are unable to give any thing like a proper ratio of the number of the married who are childless, much less have we the right to assume that all who decline the responsibilities of motherhood are necessarily barren.

1645. From observations made in England, it is estimated that nearly one-fifth of those joined in the bonds of wedlock are childless. I am satisfied that the most reliable statistics cannot indicate the *absolute* sterility of these men and women, for the reason that when a divorce has annulled the marriage tie, each one of the parties previously united in wedlock have,

in their new conjugal relations, become parents, thus conclusively proving the fruitfulness of both parties. Such facts indicate that there was an unsuitableness of the organs of generation, inadaptation of temperaments, or incompatibility of constitution, which disqualified these parties for reproduction. (See page 182.) They were only sterile with respect to each other, and fertile under more favorable alliances.

1646. **Causes.** The cause of barrenness may be a malformation of the uterine organs; as, absence of the ovaries, closure of the Fallopian tubes, absence or deformity of the uterus, obliteration of the canal of the neck of the womb, sealing up of its mouth, or inflammation resulting in adhesion of the walls of the vagina, thus obstructing the passage to the uterus. In the latter case the vagina forms a short, closed sac. In some instances the vaginal passage cannot be entered in consequence of an imperforate hymen (virginal membrane). Again the cause of barrenness may either be a diseased condition of the ovaries, preventing them from maturing healthy germs, or chronic inflammation of the mucous membrane of the neck of the uterus, which does not render conception impossible, but improbable. It is one of the most common causes of unfruitfulness, because the female seldom, if ever, recovers from it spontaneously. It has been known to exist for twenty or thirty years.

Chronic inflammation of the vagina also gives rise to acrid secretions, which destroy the vitality of the spermatozoa. Tumors connected with the ovaries, Fallopian tubes, uterus, neck of the womb, or even with the bladder or rectum, may hinder impregnation. Suppression of the menses or any disorder of the uterine functions may disqualify the female for reproduction. Flexions of the uterus, displacements, congestions, and local debility, may likewise prevent fertility. Sterility may result from impaired ovarian innervation or undue excitement of the nerves, either of which will derange the process of ovulation. Even too frequent indulgence in marital pleasures sometimes defeats conception. Prostitutes who indulge in excessive and promiscuous sexual intercourse seldom become pregnant. Any thing that enfeebles the functional powers of the system is liable to disqualify the female for reproduction.

1647. **Treatment.** Organic defects of the ovaries,

absence of the Fallopian tubes, and malformation of the uterus, are congenital deformities which cannot be corrected. But an extensive observation and experience in the treatment of sterility, convinces me that, in the majority of cases, barrenness is due to some form of disease which can be easily remedied. If the passages through the neck of the uterus be closed or contracted, a very delicate surgical operation, which causes little if any pain or inconvenience to the patient, will remove the impediment to fertility (see ¶ 1614). When the vaginal walls are sufficiently united to prevent the copulative act, a surgical operation may be necessary to overcome their adhesion. When the virginal membrane obstructs the vaginal orifice, a similar operation may be necessary to divide it. Vaginismus, which will be treated of elsewhere (see ¶ 1712), sometimes causes sterility.

1648. It is proper that I should suggest to the barren that if sexual intercourse be indulged in only very abstemiously, conception will be more likely to occur than if moderation be not exercised. I have also alluded to the fact (¶ 291) that there is greater aptitude to fecundation immediately before and soon after the menstrual periods than at other times. In fact, many medical men believe that it is impossible for conception to occur after the fifteenth day following menstruation, up to within two or three days of the return of the menses.

1649. **Elongation of the Neck of the Womb.**

An elongated condition of the neck of the womb, illustrated by

Fig. 174.



Conoid Neck (from Sims).

Fig. 174, was first pointed out by Dr. Sims, as a cause of sterility. If this part be elongated, slim, and pointed, as shown in the illustration, it is apt to curve or bend upon itself, thus constricting the passage through it and preventing the transit of seminal fluid into the womb. Dr. Thomas says, "Even a slight degree of elongation, in which the cervix (neck) has a conical shape, has been observed to be frequently followed by that condition [sterility]." My own observations, embracing the examination of hundreds of sterile women annually,

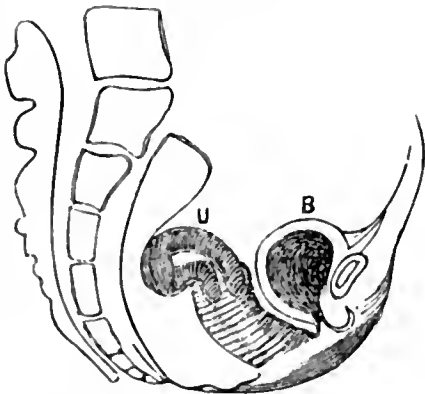
lead me to believe that this condition is among the common

causes of barrenness. But, fortunately, it is one of those most easily overcome.

1650. **Treatment.** This (if the neck be only slightly elongated) consists in splitting the projecting part, by the use of the *hysterotome*. If it be a more aggravated case, a portion of the neck of the womb must be amputated. This operation is perfectly safe and simple, and, strange as it may seem to those who are not familiar with operations upon the womb, is but slightly painful. I have never seen any bad results follow it, but have known it to be the means of rendering numerous barren women fruitful.

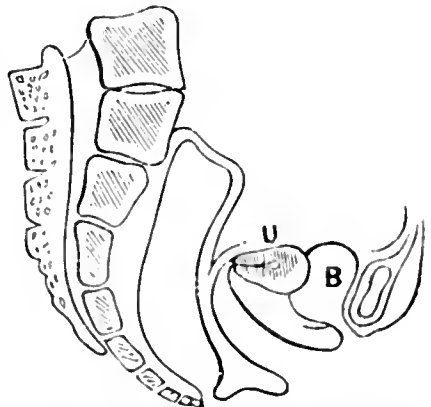
1651. **Flexions and Versions of the Womb.** Flexion of the uterus (womb), in which it is bent upon itself, as illustrated in Fig. 175, produces a bending of the cervical canal, constricting or obliterating it, and thus prevents the

Fig. 175.



Flexion. U, Uterus. B, Bladder.

Fig. 176.



Version. U, Uterus. B, Bladder.

passage of spermatozoa through it. Version of the uterus, in which the top, or fundus, of the womb falls either forward against the bladder (ante-version), as illustrated in Fig. 176, or backward (retro-version) against the rectum (lower bowel), may close the mouth of the uterus by firmly pressing it against the wall of the vaginal canal, and thus prevent the passage of spermatozoa into the womb. The treatment of these several displacements will be considered hereafter. I may here remark, however, that they can be remedied by proper treatment.

1652. **Diseases of the Ovaries.** Sterility may be due to diseases of the ovaries. Chronic inflammation of the

ovaries may result from uterine disorders or peritonitis, and is commonly attended with a sense of fullness and tenderness, and pain in the ovarian region. These symptoms are more apparent upon slight pressure, or during menstruation. This malady is curable, although it may require considerable time to perfectly restore the health. When this chronic difficulty is the result of other disorders, the indications are to restore health in the contiguous organs, and to relieve excess of congestion and nervous excitement in the ovaries. The patient should be very quiet during the menstrual period, and avoid severe exercise or fatiguing occupation, not only at those periods, but during the intervals. All means and measures calculated to improve the general health are recommended. Use injections of warm water, medicated with borax, soda, and glycerine, in the vagina every night and morning. The surface of the body must be kept clean by the daily use of hand-baths, followed by brisk friction. The bowels, if costive, should be regulated as suggested for constipation. The system should be strengthened by my Favorite Prescription, and if the blood be disordered, no better alterative can be found for domestic use than my Golden Medical Discovery. If the patient do not in a few months improve under this treatment, the case should be placed under the immediate care of some one well qualified by education and experience to critically examine and successfully treat this affection.

1653. Chronic Inflammation and Ulceration of the Uterus a Cause of Sterility.

When enumerating the causes of barrenness, I mentioned that chronic inflammation of the mucous membrane of the mouth and neck of the womb was the most common disorder that defeats conception. Of all diseases of the female organs, this is, without doubt, the most common, and since it does not at first produce great inconvenience or immediately endanger life, it does not excite the attention which its importance demands. It is overlooked, and when the attention is directed to the existence of this long-neglected disease, it appears so trivial that it is not regarded as being the real cause of infertility in the patient.

1654. When this disease has existed for a long time, the very structure of the parts involved becomes changed. The glands of the cervical membrane secrete a glairy mucus, resembling the

white, or albuminous part of an egg. The secretion is thick and ropy, and fills the entire mouth and neck of the uterus, thus preventing the entrance of the spermatozoa. The mucous membrane becomes thickened, the inflammation extends to the deeper structures, and on examination through the speculum we find the mouth of the uterus inflamed, hardened, and enlarged, as represented in Fig. 22, Colored Plate IV, or in Fig. 23, of same plate. Fig. 25, Plate IV, shows the mucous follicles just as they are found all along the neck of the womb, in a state of inflammation and enlargement, and filled with a honey-like fluid, and giving rise to ulceration and a thick discharge, as illustrated in Fig. 23, Colored Plate IV.

1655. Feebleness of the constitution, impoverishment of the blood, scrofulous diathesis, want of exercise, uncleanness, tight lacing, disappointment, excessive passional excitement, the use of pessaries for displacement of the uterus, overdoing, taking cold, etc.,—all predispose the cervical membrane to chronic ulceration.

1656. The inflammation may be so mild, and the discharge so trifling in quantity, as scarcely to attract the attention. But after it obtains a firmer hold (and in most cases it is aggravated by exposure or incautiousness), the patient experiences dragging sensations about the pelvis, and pain in the back and loins, accompanied with a bearing-down sensation and numbness or pain extending to the thighs.

The discharge is thick, starch-like, and generally irritating. The patient becomes irascible, capricious, fault-finding, sometimes moody and hysterical. She is easily discouraged, appetite and digestion become impaired, and she grows thin and does not look or act as formerly.

1657. **Treatment.** In offering a few hints for the domestic management of these abnormal conditions, I would at the same time remark, that, while health may be regained by skillful treatment, recovery will be very gradual. I especially wish to guard the patient against entertaining too sanguine expectations of a *speedy* recovery. Although she may employ the best treatment known to medical science, yet from four to eight months may elapse before a perfect cure can be effected. In persons of a scrofulous diathesis, in whom the

recuperative forces are weakened, it is very difficult to effect a radical cure. It is equally true, however, that under domestic management alone thousands have been restored to perfect health and become fruitful.

1658. Hygienic management consists in toning the functions of the skin by daily bathing the surface of the body, and quickening the circulation by brisk friction. The patient should rise early in the morning, and exercise in the fresh and invigorating air. Those who sleep in warm rooms, or spend much of their time in bed, will continue to have congestion of the uterus, and habitual discharges from this enfeebled organ. The patient should take daily walks, increasing the length of the excursion from time to time, but not to the extent to produce fatigue. The bowels, if costive, must be regulated (see article on Constipation). Strengthen the system by using my Favorite Prescription, to each bottle of which add two drachms of citrate or pyrophosphate of iron. The vaginal mouth and neck of the uterus should be thoroughly cleansed by the use of the syringe, as suggested for the treatment of leucorrhœa. The use of some one of the lotions there advised will also be beneficial, if thoroughly applied.

1659. A most valuable course of local treatment, which may be adopted by any intelligent lady without the aid of a physician, and one that will result in the greatest benefit when there is morbid sensibility, congestion, inflammation, or ulceration, about the mouth or neck of the womb, consists in applying to those parts a roll of medicated cotton or soft sponge, allowing it to remain there for twenty-four hours at a time. A piece of fine, soft, compressible sponge, as large as a hen's egg, or a roll of cotton batting two-thirds as large, thoroughly saturated with pure glycerine, should have securely fastened to it a stout thread a few inches long. The vagina and affected parts having been thoroughly cleansed with warm water and Castile-soap, as advised in the treatment of leucorrhœa, the sponge or cotton should be passed up the vagina with the finger, and pressed rather firmly against the mouth and neck of the womb, which, from its enlargement and consequent falling below its natural position, will generally be low down in the vagina, and so hardened as to be unmistakably distinguished from the

surrounding parts by the sense of touch. The glycerine, having a very strong affinity for water, will absorb large quantities of the serum, which has been effused into the affected tissues in consequence of their congestion and inflammation, and thus reduce the inflammation and enlargement. This is the cause of the profuse, watery discharge which frequently follows the application. In about twenty-four hours after the sponge or cotton has been applied, it must be removed by means of the attached thread, one end of which has been purposely left hanging out of the vagina. Then thoroughly cleanse the vagina with warm water, use one of the lotions suggested for the treatment of leucorrhœa, and repeat the glycerine application.

If there be no irritation or tenderness of the vagina, add one drachm of tincture of iodine to each ounce of the glycerine, alternating the use of this with that of the pure glycerine; or, the iodine and glycerine may be used every third day and the glycerine alone on the two intervening days. As the iodine will color the finger somewhat, it is well to know that this unpleasant effect may be almost or entirely avoided by coating that member with lard oil. The stain may be readily removed by a solution of iodide of potassium. If the discharge be very fetid, three grains of carbolic acid should be added to each ounce of the glycerine. The carbolic acid is very beneficial where there is ulceration of the mouth of the womb, as represented in Figs. 22 and 23, Colored Plate IV.

1660. It is well to alternate the Golden Medical Discovery with the Favorite Prescription, taking of each three times a day. By persevering in this course of treatment, nine-tenths of those who are thus afflicted will improve and be fully restored to health, fruitfulness, and happiness. If barrenness continue, the case should be unreservedly submitted, either in person or by letter, to a physician skilled in the diagnosis and treatment of these affections.

From the foregoing remarks the reader will perceive that there are a variety of diseased conditions, any one of which may produce sterility. It is equally true that nearly all these conditions may be remedied by proper medical and surgical treatment. I subjoin a few of the many cases which I have treated, as illustrations of this fact.

CASES TREATED.

1661. **Case I.** Mrs. K. consulted me in 1867. She was then thirty years of age and had been married ten years, but was sterile. By examination, I found the cervical membrane highly inflamed, a condition termed in professional works, *cervical endometritis*. The diseased glands of the cervical membrane excreted a thick, glutinous matter, which effectually obstructed the canal, and thus prevented the passage of the spermatozoa into the uterus. By the aid of the speculum, I introduced sponge-tents to dilate the cervix, or neck of the womb, and applied specific remedies to the diseased parts. These applications were made twice each week for six weeks, after which the constitutional treatment was continued for a few weeks longer. Within three months thereafter the lady became pregnant, and in due time gave birth to a son.

Case II. Mrs. H. G., aged thirty-five, consulted me in 1869. She had been married seventeen years, but had never been pregnant. I found the neck of the womb in the condition illustrated by Fig. 174. A surgical operation was necessary, and was successfully performed. In four weeks she recovered and was discharged. She became pregnant soon after, and, to the joy of both husband and wife, a son was born to them, after years of patient waiting.

Case III. Mrs. Henry C., aged twenty-seven, had been married seven years, when, in 1870, she consulted me. Her menstruations had been regular, but marked by severe pain. She was sterile, but desired offspring. I instituted a thorough examination, and found the cause of sterility to be a stricture of the cervical canal. The treatment indicated for obstructive dysmenorrhœa was performed, and the appropriate constitutional treatment continued during a period of five weeks. At the end of this time she menstruated freely and without pain. Within four months after her recovery she became pregnant. The cure was permanent.

Case IV. Mrs. H. consulted me in 1873. She had been married ten years but had never been pregnant. The diagnosis was simple. She was suffering from uterine leucorrhœa. The discharge was gelatinous and slightly tinged with blood. Examination proved that the discharge was due to uterine

congestion. The proper treatment for that affection was instituted, the abnormal secretion of the uterine membrane was stopped, and the cause of the patient's sterility thus removed. By following the prescribed course of constitutional treatment, she fully regained her health. The treatment was effectual and permanent. She became pregnant and gave birth to a healthy child.

Case V. Mrs. T. consulted me in 1865. She had been married seven years, but was sterile, and the peculiar cause of her sterility had occasioned great conjugal unhappiness. The cause of her sterility was an abnormal sensibility of the lining membrane of the vagina, which precluded a possibility of conception. She was the victim of the morbid affection termed *vaginismus*. I succeeded in effecting a radical cure without resorting to a surgical operation. She is now the mother of a family.

MASTURBATION A CAUSE OF DISEASE IN WOMEN.

1662. It is a law of nature, that any faculty becomes stronger by being exercised. This is also true of the venereal propensity. Indulgence makes it a powerful and controlling passion. Responsibility begins with life, and there is not an organ in the body that does not imply function. How easily can we pervert the sensibilities and functions, and render them morbidly active and domineering! The responsibility of such perversion does not rest altogether upon the growing child or promising maiden, but it belongs also to parents and teachers, who should warn and instruct them concerning the danger of arousing the propensities. I have known young women of lovely disposition, whose health was undermined and career ended before attaining their twenty-third year, in consequence of self-indulgence, begun before they were eight years old!

1663. **Nymphomania.** The diseased conditions resulting from masturbation, when occurring in the female, are usually designated by the term *Nymphomania*, which has been defined as "a disease in females, attended by an uncontrollable and insatiable desire for sexual intercourse." But since this "insatiable desire" is only one of many morbid manifestations resulting from self-gratification of the sexual passions, or from

excessive venery, and, in fact, is frequently absent, the term is illy chosen to designate the numerous disorders of the system consequent upon such abuses and excesses. Instead of an inordinate desire for venery, there is, in many cases, a disposition of coldness and indifference toward the opposite sex—a lack of sexual passion.

1664. **Spermatorrhœa in Women.** Some authors have employed the term *Spermatorrhœa* to designate those morbid symptoms resulting from masturbation in the female, since they are the counterpart of those produced in the male by the same cause, and which have been designated by that term. But it is a misnomer as applied to women, since they cannot lose sperm.

1665. As the semen, or sperm, of the male is a vital secretion, and its excessive loss is followed by debilitating results, so the discharge occurring during the sexual orgasm of the female produces a depression of energy. It has long been my opinion, however, that the general debility resulting from masturbation, in both male and female, is more due to the unnatural shock produced upon the sympathetic nerves distributed to the sexual organs, than to the attendant loss of vital secretions. The moderate and natural gratification of the sexual propensity is conceded by all physiologists to be healthful, but the unnatural gratification sought in the practice of onanism (masturbation), although perhaps attended with no greater seminal loss at the time, is always injurious to the system. Strike the region of the stomach, or inflict a blow upon the testicles, and you produce so powerful a shock upon the sympathetic nerves, which are freely distributed to those parts, as to instantly annihilate strength, and render an adult as weak as a child. So the unnatural impression produced upon the sexual organs by masturbation, although it does not so powerfully and suddenly deprive the system of its strength, yet it accomplishes the same result gradually, eventually making it a chronic weakness.

1666. Discarding both nymphomania and spermatorrhœa as inappropriate terms to designate the disorders caused in the female by self-pollution, and without any attempt to substitute another, I shall proceed to draw a pen picture of a train of symptoms which, although sometimes resulting from excessive

sexual intercourse, is more commonly the result of solitary indulgence. Inordinate sexual desire, which is sometimes a result of this vice, may also be caused by uncleanness, *pruritus vulvæ* (§ 1634), the reading of obscene books, or by allowing the mind to dwell upon lascivious subjects.

1667. It is needless to assert that drunkenness is a disease. After the habit has become fully confirmed, the propensity to indulge in intoxicating liquors becomes ungovernable. It completely subjugates the reason and will, and the victim yields to the morbid demands of his appetite. Just so in regard to this disease; for whenever any propensity becomes inordinate, it is a morbid affection. The allurements of the flesh are ever presented to us in a deceptive guise, and so they come to the young and unwary with bewitching sweetness, until consumption not unfrequently ends the siren enchantment !

1668. The peculiar endowments of the sexual organism are calculated to impart pleasure. *Solitary gratification* never awakens joy and gladness, social delight and love; it only sinks the individual into selfish sensuality. It makes her gloomy and unhappy, and estranges her from humanity. She dares not whisper her secret trouble to a sister or mother, and hardly has she the courage to breathe it to the physician who undertakes her rescue. But, at last, being conscious that she is within the charmed circle of some dangerous whirlpool of disease, and in dread of impending danger, she submits the history of her case, and this habit is found to be the chief cause of her troubles.

1669. In a letter addressed to me, bearing date September 7th, 1870, the writer, a lady twenty-four years of age, says that she commenced the habit of self-indulgence when but fifteen years old, without suspecting that she was doing wrong, and had continued it nearly to the time when she wrote me the letter. Her health began to fail, but she did not suspect the cause of its decline, until by chance she learned that this habit was injurious, and then she firmly resolved to abandon the practice. But it had become so fixed, and the passion was so strong and overpowering, that she was unable to restrain herself, even while realizing the terrible mischief that it was producing. Catarrh had attacked her in its worst form, the eyes were bloodshot, swollen, and watery, the sight obscured, she grew deaf and had

to converse by signs. Her strength failed, her memory was gone, and she had partially lost her faculties of thought. Finally, leucorrhœa was added to her troubles, and she became emaciated and utterly discouraged. She was well educated, and, before becoming prostrated by this habit, she possessed excellent physical endowments and her future was bright and promising. But now all her hopes were shaded, the fine physique had become a miserable wreck, and she made touching appeals to my skill for relief. I have given a true delineation of her symptoms, and yet many will incredulously ask, Is this an *actual* case? It is a correct report of the case of a patient whom I have treated. I could illustrate the prevalence of this habit and its dire consequences by hundreds of letters, but I will not draw upon my professional records to further substantiate my statements.

1670. When this morbid passion gets control of a person, it is as though an unclean spirit had entered, subdued the will, weakened the moral forces, enfeebled the intellectual faculties, lessened the power to resist temptation, and overcome every obstacle opposed to its gratification. Even while the intellect is still clear, and the sense of wrong keen, the individual is a slave to this morbid impulse.

1671. The practice of self-abuse leaves an indelible impress upon the nervous system. The patient manifests a love of solitude. She becomes despondent and loses her natural vivacity. Her complexion loses its delicate blush, the eye its lustre, and the voice its melody; her breasts lose their rotundity and become flabby, or are not developed. The general debility of her system renders her extremely susceptible to every disease. The menses are disturbed, and leucorrhœa, falling of the womb, hysteria, sterility, chronic uterine or ovarian congestion, epilepsy, and other nervous diseases, are common results.

1672. Some young women who practice masturbation experience an indescribable feeling of illness throughout the whole body. They complain of a general trembling of the limbs, chilliness, painful drawing or dragging sensations in the abdomen, and relaxation of all the muscles, sometimes accompanied with strange illusions, hysteria, and convulsions. The skin is sallow and dry, the breath fetid, the abdomen painful,

the pulse small, weak, contracted, and there are often violent pains in the head and uterus. In some cases, the disease assumes a more violent mental form, in which even the most refined women frequently talk in an indecent manner, and place themselves in the most improper situations and attitudes.

Women of highly excitable temperaments so intensify their sexual ardor by self-indulgence, that they are apt to betray their longings to their male companions, and thus many times give way to temptation, and are initiated into lives of prostitution. Some are actually convulsed by their ungovernable emotions.

1673. Sterility is often a sequence of self-abuse. It blunts the sensibility of the parts, so that the wife cannot enjoy sexual intercourse, and the husband calls her cold and passionless. Many times coition is exceedingly painful to her, and she avoids it in every possible way. The husband, disappointed in his legitimate embraces, many times seeks other means of gratification.

1674. **Treatment.** The habit must be absolutely relinquished. The animal forces should be expended in mental or physical employments. Let the patient rise early and walk or engage in some kind of labor. The sensibility and irritability of the sexual organs should be diminished by using cold baths. The patient should live abstemiously, and the bowels must be kept regular, and thus free from the congestion and irritation attendant upon constipation. (See Constipation.) Avoid the reading of books which will excite the passions, and associate only with those persons who are rigidly chaste in their ideas and conversation. It is very important to take daily and prolonged exercise in the open air, in order that at night the fatigue of the body shall divert the sexual feelings. It is equally necessary to take daily baths, one upon rising in the morning, and, if the patient have sufficient vitality, another in the middle of the afternoon, each bath to be followed by brisk friction.

1675. These cases should be submitted to the remedial treatment of an experienced physician. To give to the non-professional reader a full list of the remedies which are adapted to the different temperaments and constitutions, with full directions for their use, would fill the pages of a small volume, and

serve to confuse and perplex, rather than enlighten and benefit. It would lead only to experiments, failures, and loss of faith in medicine, while if these remedial agents be *skillfully* prescribed, the result is generally salutary and satisfactory. In this connection, I will remark that the depreciation of the profession and the undervaluation of drugs, not only in this, but in all other diseases, originate with those who are uneducated, inexperienced, and, therefore, unqualified for the practice of medicine. There is no such thing as infallibility in any art, the perfection of which depends upon the exercise of human faculties. Occasional failures in the profession furnish no good grounds for such sweeping detractions as often fill the pages of journals edited by pseudo-hygienic reformers !

1676. Patients afflicted with this disease must rigidly observe the sanitary regulations which I have prescribed, and persevere in the use of remedies adapted to their case. They will require all the aid that may be obtained from both domestic and professional treatment, to overcome this malady and regain that complete *self-control* which is the indispensable basis of recovery.

ABORTION. (MISCARRIAGE.)

1677. The term *Abortion* is used to denote the premature expulsion of the fœtus. If the expulsion take place within four months after impregnation, it is termed *abortion*; if between the fourth and the seventh month, *miscarriage*; if after the seventh month, but before the completion of the full period of gestation, *premature labor*.

1678. Abortion may be due to (1) those agents which act directly upon the uterus and cause the expulsion of the fœtus; (2) those which occasion the death of the fœtus, thereby effecting its ejection; and (3) it may be *criminal*, that is, designedly produced by direct agencies intended for that purpose.

1679. **Symptoms.** The premonitory symptoms are pain in the loins and lower part of the back, a dull pain in the abdomen and thighs, nausea, chills, and palpitation. The membranes and blood-vessels of the uterus become lacerated, causing profuse hemorrhage. The discharge of blood from the vagina is

sometimes attended with excessive pain, frequently more severe than that of labor.

1680. **The Causes** which act directly upon the uterus to produce abortion, may be violent exercise, lifting, accidents, or injuries from blows, falls, etc. Nervous susceptibility, a plethoric condition of the system, anæmia, exhaustive discharges, use of improper food, uterine displacements, congestion caused by excessive sexual excitement, general debility or muscular irritability, which is sometimes so great as to produce contractility of the uterus before the term of pregnancy is completed, inflammation of the cervix, ulcerations of the uterus, or any previously existing disease, may produce abortion. When it has once taken place, it is apt to recur at about the same time in subsequent pregnancies.

1681. The death of the fœtus may be occasioned by a diseased condition of the embryo, as disease of its head, chest, amnion, or placenta, and also by convulsions or peritoneal inflammation.

1682. **Criminal Abortion** is secretly practiced by women who desire to rid themselves of the evidence of immorality, and by those in wedlock who wish to avoid the care and responsibility of rearing offspring. Statistics show that it is fearfully prevalent, undermining the health of women and corrupting the morals of society. I cannot pass this subject in silence. Those who frustrate the processes of nature by violating the laws of life incur just penalties. All the functions of mind and body are vitally concerned in reproduction. The Divine law, "Thou shalt not kill," is instinctively iterated by nature. Its obligation cannot be evaded, and its penal effects are inevitable. All such transgressors carry with them the consciousness of guilt and the feeling of secret woe.

"O God! that horrid, horrid dream
Besets me now awake!
Again, again, with dizzy brain,
The human life I take,
And my red right hand grows raging hot,
Like Cranmer's at the stake."—HOOD.

1683. And what shall we say concerning abortionists,—men and women who are willing to engage in the murder of

innocents for pay? True, there may be circumstances in which it is not right to continue in the pregnant condition, as when the children of an unfortunate marriage are idiots, or the pelvis of the woman is so deformed that she cannot bear a living child. All such cases should be submitted to the *family* physician, who ought to understand all the circumstances and facts relating to the case. Let him summon other physicians for counsel, and their deliberations may determine the rightfulness or necessity of abortion:

1684. Parties have written to me, and others have made personal application, under circumstances when it might have been right to induce abortion if they had made an appeal to their *family* physician and followed his advice. I wish to have it distinctly known that under no circumstances will I prescribe medicines or resort to any operation to relieve women of pregnancy. I utterly *detest* the practice, and regard it as flagrantly criminal.

1685. Mechanical means are resorted to by abortionists, and many ladies produce abortion upon themselves. It always terminates in lasting injury, if they survive it. Some medicines will produce abortion, though they are uncertain and unsafe. The nostrums, known as "Female Pills," and "Periodical Drops," are villainous frauds, yet unmarried women who have become pregnant, young wives who do not wish children, and older ones who have had children, and do not want any more, will waste their means upon these things only to meet with utter disappointment. A quack in New York testified that his pills, "double strength, that never fail, and sold for \$5 per box," were made of soap and bread. Such is charlatanism! An opinion is quite prevalent that if abortion be produced before the movements of the *fœtus* are felt, there is no harm done. It should be remembered that *life begins with conception*, and at whatever period of pregnancy abortion is committed, *life is destroyed!* Whoever disobeys the Divine injunction, cannot escape his own consciousness of the deed, and the anguish and bitter remorse that will ever after disturb the soul.

1686. **Treatment.** In threatened abortion there is pain in the back or "low before," and later, some flow of blood. The first object is to obtain perfect rest and quiet, and assume the recumbent position. By lying down, the blood will be more

easily diverted to the surface of the body. A Dover's powder may be administered, to assist in determining the blood to the surface and extremities of the body. The room should be cool, the patient should lie on a hard bed, and all company avoided, for excitement favors abortion. A tea of Canada fleabane, or five drops of the oil, may be substituted for the Dover's powder. If the flow of blood equal a gill in amount, there is little hope of preventing abortion, and the conduct of the case must be confided to the family physician.

DISPLACEMENTS OF THE WOMB. (FEMALE WEAKNESS.)

1687. The relative positions of the womb and surrounding organs, when in a state of health, are well illustrated by Fig. 106, page 217. The womb is supported in place by resting upon the vaginal walls, and by a broad ligament on either side, as well as by other connective tissues. By general debility of the system, the supports of the womb, like the other tissues of the body, become weakened and inadequate to perfectly perform their duty, thus permitting various displacements of that organ.

1688. **Prolapsus, or Falling of the Uterus,** or, as it is often called, "Female Weakness," is a common form of displacement. It has been erroneously regarded as a local uterine disease, requiring only local treatment, instead of considering it as a symptom of general derangement, and therefore one requiring constitutional treatment. Hence variously devised supporters have been invented to retain the womb in position after replacing it. It is a law of physiology, that an organ is strengthened by use, and that want of exercise weakens it. The blacksmith's arm is strengthened and developed by daily exercise. Support his arm in a sling, and the muscles will be gradually weakened and wasted. So when artificial supports are used to retain the womb in position, thereby relieving the supporting ligaments and tissues of their normal function, the *natural* supports of the uterus are still further weakened, and the prolapsus will be worse than before when the artificial support is removed. Besides, all these mechanical contrivances are irritating to the delicate and sensitive tissues of the womb and vagina, and frequently produce congestion, inflammation, and even ulceration, thus rendering the patient's condition much

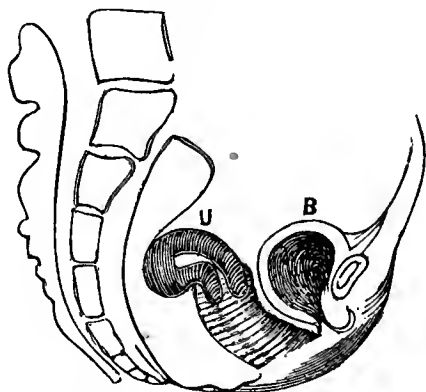
worse than before their employment. These worse than useless appliances should never be resorted to for the temporary relief which they sometimes afford. Constitutional treatment is the only effectual method of remedying this morbid condition.

1689. **Symptoms.** When the displacement is sufficient to cause any serious disturbance, the prominent symptoms are a sensation of dragging and weight in the region of the womb, pain in the back and loins, inability to lift weights, great fatigue from walking, leucorrhœa, frequent desire to urinate, irritation of the lower bowel, and derangement of the stomach. The womb may protrude from the vaginal orifice; in very rare cases it wholly protrudes, and may be inverted.

1690. **Causes.** As I have already stated, general debility favors prolapsus of the womb, but various general and local circumstances and conditions also favor its occurrence. Wearing heavy garments supported only by the hips, compressing the waist and abdomen by tight clothing, thus forcing the abdominal organs down upon the womb, are fruitful causes of this affection. Excesses in sexual intercourse give rise to leucorrhœa, producing a relaxed condition of the vagina, upon which the womb rests, and in this way one of its supports is weakened. Enlargements of the uterus from congestion, and inflammation or tumors, also favor prolapsus. Abortion may leave the womb enlarged, its supports weakened, and result in this displacement.

1691. **Flexions and Versions.** Instead of sliding down into the vagina, as in prolapsus, the uterus is liable to fall or be forced into other malpositions. When the uterus is bent upon itself, it is called *flexion*. If the bending be backward, it is called *retroflexion*; if forward, *anteflexion*. Fig. 177 represents the former condition, the uterus being flexed backward so that the fundus, or upper part of the womb, is pressed against the rectum, while the neck of the uterus remains in its natural position. This is a common form of

Fig. 177.



Retroflexion. U, Uterus (Womb).
B, Bladder.

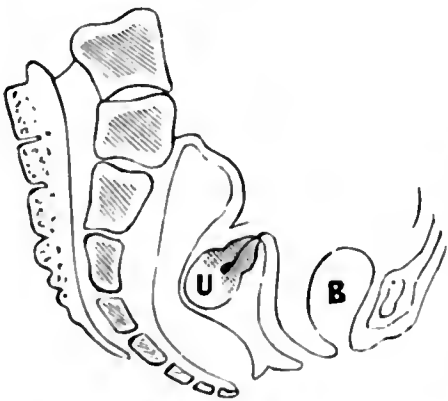
displacement, and generally occurs between the ages of fourteen and fifty.

1692. **Symptoms.** The prominent symptoms of retroflexion of the uterus are a sense of weight in the region of the rectum, difficulty in evacuating the bowels, and sometimes a retention of the fæces. There may also be suppression of the urine, and the menses may be diminished in quantity. If retroflexion be due to a chronic enlargement of the uterus, caused by abortion or parturition, the patient suffers from an immoderate menstrual flow.

1693. **Causes.** The principal causes of retroflexion are *congestion, enlargement,* and tumors of the uterus. Congestion is liable to occur in women possessing an extremely active temperament, as well as in those of sedentary and indolent habits. Experience furnishes the following general conclusions: (1) That retroflexion is a common displacement in both married and unmarried women; (2) that it is a secondary affection; (3) when it is caused by congestion, the menses are painful and reduced in quantity; and (4) that there is pain in the back and a sense of weight in the region of the rectum. In some instances there is a reflex irritation of the mammary glands, and a consequent secretion of milk. There may also be nausea and vomiting, which lead to the erroneous opinion that the patient is pregnant.

1694. *Anteflexion* of the uterus denotes a bending forward of the body and fundus of the uterus, while the neck remains in its natural position.

Fig. 178.



Retroversion. B, Bladder.
U, Uterus (Womb).

1695. In *Versions* of the uterus, neither the *body* nor the *neck* of the womb is bent upon itself, but the *whole organ* is completely turned backward or forward.

1696. *Retroversion* of the uterus, illustrated by Fig. 178, signifies a change in the position of the womb, so that the upper, or fundal portion of the organ drops back toward the concavity

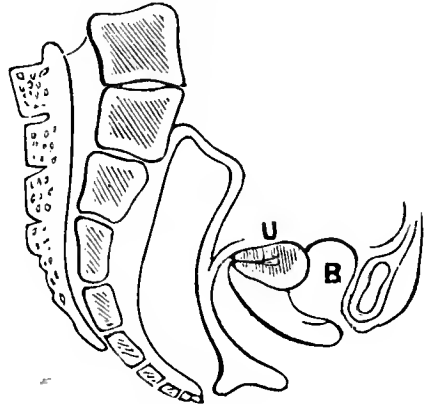
of the sacrum (spine), while the neck preserves a straight line in the opposite direction. The fundus presses forcibly against the rectum, while the upper part of the vagina bends abruptly and forms an acute angle near the mouth of the uterus.

1697. **Symptoms.** Retroversion is indicated by bearing-down pains in the loins, and difficulty in evacuating the bowels. The fæces may accumulate in the rectum, because they cannot pass this obstruction.

1698. **Causes.** Jumping, falling, or undue pressure from the abdominal contents, may suddenly retrovert the uterus. Sometimes retroversion results from obstinate constipation.

1699. *Anteversion.* This term designates another malposition of the uterus, in which the fundus, or top of the uterus, falls forward, as illustrated by Fig. 179, while the neck points towards the hollow of the sacrum. This position of the womb is the reverse of that in retroversion. In its natural position, the fundus of the uterus is slightly inclined forward, and any pressure, or forward traction, will cause it to fall still further in that direction.

Fig. 179.



Anteversion. U, Uterus. B, Bladder.

1700. **Symptoms.** One of the most common symptoms of anteversion is the desire to urinate often, in consequence of the pressure of the uterus upon the bladder. It sometimes obstructs the free flow of the menses.

1701. **Causes.** The causes are tight lacing, prolapse of the abdominal organs, weakness of the supporting ligaments, and enervating habits.

1702. **Treatment.** In treating all the various displacements of the uterus, the prominent indication is to tone up the general system, for by so doing we also strengthen the uterine supports.

Digestion must be improved, the blood enriched, and nutrition increased, so that the muscles and ligaments which retain the womb in position will become firm and strong. The womb

will thus be gradually drawn into position by their normal action, and firmly supported. It is a great mistake, made by physicians as well as patients, to consider "female weakness" a *local* disease, requiring local treatment. A restoration of the general health will result in the cure of these displacements, the uterus will regain its tone and muscular power, and the local derangement, with its attendant pain and morbid symptoms, will disappear.

It is true that "female weakness" may be associated with inflammation and ulcers, which require local treatment, as elsewhere suggested; but simple displacement of the uterus may be remedied by pursuing the following course of sanitary and medical treatment: Sleep on a hard bed (never on feathers), rise early, bathe, and take a short walk before breakfast. Dress the body warm, and allow sufficient space for the easy and full expansion of the lungs. Eat moderately, three meals a day, of those articles which are nutritious and readily digested. Keep the bowels regular by the use of proper food. If they be constipated, employ the treatment elsewhere suggested for that condition. Avoid retaining the standing position too long at a time, especially when the symptoms are aggravated by it. Many ambitious women disregard their increasing pains, and keep upon their feet as long as possible. Such a course is extremely injurious and should be avoided.

1703. As a general restorative and uterine tonic, nothing surpasses my Favorite Prescription, which is sold by druggists and accompanied with full directions for use. If the back be weak, add one drachm of quinine, one ounce of the fluid extract of black cohosh-root, and half an ounce of the tincture of capsicum, to half a pint of alcohol, and rub the spine with it every night before going to bed. If leucorrhœa be an attendant symptom, the treatment suggested for it in ¶ 1639 should be employed.

1704. By *persevering* in the rational treatment which I have suggested for the various displacements of the womb, nearly all who suffer from such ailments may be fully restored to health. The patient must not expect *speedy* relief. Considerable time will be necessary to bring the general system up to a perfect standard of health, and until this is approached, no great

improvement in the distressing symptoms can be expected. In cases where the uterus is held in its malposition by the adhesion of the surrounding tissues, or great enlargement and consequent pressure of surrounding organs upon it, a physician's services will be required to correct the displacement. After being restored to its proper position, a process which is easily effected by the employment of an instrument called a *repositor*, then the treatment suggested should be renewed. If it be replaced by this mechanical operation before the system and its supports have been properly strengthened by a course of tonic treatment, it will fall back into the position which it previously occupied. Hence replacement by operation should not first be resorted to in these cases; generally it will not be required at all, and when it is, it should be followed by a protracted course of tonic and restorative treatment.

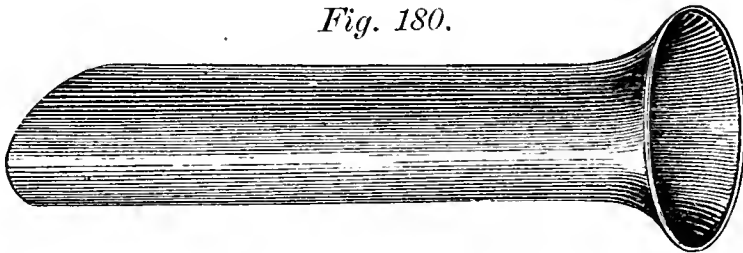
ULCERATION OF THE UTERUS.

1705. Ulceration is the process by which ulcers, or sores, are produced. It is characterized by the secretion of pus, or some fetid discharge, and is continued as a local disease through the operation of constitutional causes. Ulcers are generally symptoms of other morbid conditions.

Ulcers may form in the *mouth* or *neck* of the uterus, and, omitting cancerous ulcers and those of a syphilitic character, which are considered elsewhere, may be classified as *Granular* and *Follicular*.

1706. **Granular Ulcer.** This variety of ulcerative degeneration is the most frequent, and may exist for some time

Fig. 180.



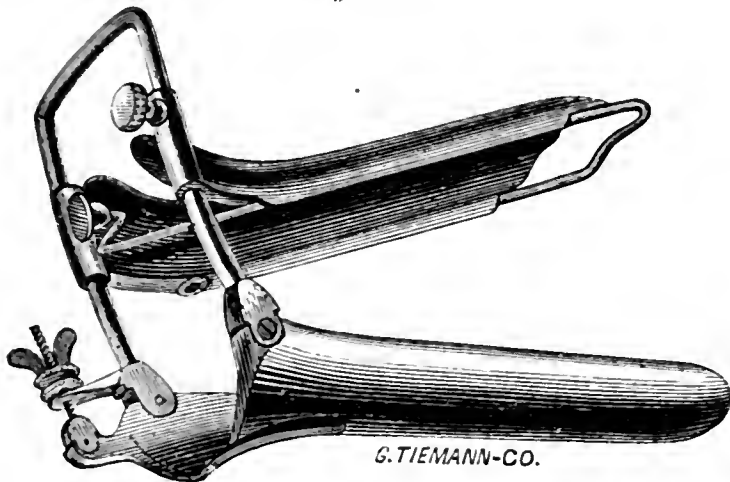
The Fergusson Speculum.

without exciting any suspicion in the mind of the patient that she is afflicted with any such morbid condition. There is local inflammation, and the mouth of the uterus is uneven, rough,

and granular. If an examination be made with the speculum, the mouth of the uterus is often found in the condition represented in Fig. 22, Colored Plate IV.

1707. Figs. 180 and 181 represent two different forms of specula. The one represented by Fig. 180 consists of a tube of glass coated with quicksilver and covered with India rubber,

Fig. 181.



An Expanding Uterine Speculum.

which is thoroughly varnished. That represented by Fig. 181 is made of metal, and plated. By using one of these instruments, the condition of the mouth of the womb can be distinctly seen.

1708. **Follicular Ulcer.** When the mucous follicles of the neck of the uterus are inflamed they enlarge and become filled with a fluid having the color and consistency of honey, presenting the appearance illustrated by Fig. 25, Colored Plate IV. This secretion, because of the presence of inflammation, is not discharged. The follicles, therefore, continue to enlarge until they burst, and we then see in their place the red, elevated, angry-looking eminence, which is called a *follicular ulcer*.

1709. **Symptoms.** The severity of the symptoms depends upon the character of the ulceration. It may be simple or associated with purulent leucorrhœa and hemorrhage. If ulceration be slight and local, few symptoms will be present; but if it be associated with uterine debility, congestion and inflammation of the mucous membrane of the uterus, the discharge

will be profuse, and there will be fixed pain in the back and loins, a bearing-down sensation, and great difficulty in walking. The discharge is weakening, as it impoverishes the blood, and thus reduces the strength.

1710. **Causes.** Ulceration may be induced by any thing that excites inflammation of the lining membrane of the mouth and neck of the uterus. The use of pessaries, excessive sexual indulgence, injuries occasioned by giving birth to children, congestions, enlargements, and displacements, may all operate as causes.

1711. **Treatment.** For a proper treatment of these ulcers, the reader is referred to that suggested on pages 743 and 744. The course there advised has proved very successful. I cannot too strongly condemn the practice so popular at the present time, of indiscriminately burning all uterine ulcers with strong caustics, regardless of the condition of the general system. Ulcers of the womb must be healed in the same manner as those upon any other part of the body. It is irrational practice to repeatedly cauterize them, expecting thereby to promote healing, while the system is vitiated and the vitality far below the standard of health. Enrich the blood, tone up the system, keep the ulcers cleansed as suggested, and they will generally heal. Caustics often aggravate the irritability and interfere with the healing processes of nature. Ladies should not unnecessarily submit to the exposure of their persons. If they perseveringly employ the treatment which I have suggested, other local treatment will rarely be found necessary. This modern warfare which physicians are waging upon the unoffending womb is a most irrational practice. Our grandmothers got along very well without exposing themselves to the humiliation and tortures of this new-born empiricism. I do not wish to be understood as undervaluing or denying the necessity, in rare cases, of examinations of the uterus, or as being unappreciative of the aid afforded in such investigations by the speculum, and the beneficial effects of local applications made directly to the womb through that instrument. What I affirm is, that such examinations and applications are, in the practice of most modern physicians, made unnecessarily frequent, resulting many times in lasting injury to the patient.

VAGINISMUS. (IRRITABLE VAGINA.)

1712. Not unfrequently the nerves distributed to the mucous membrane of the vagina, especially to that portion near the hymen, become morbidly sensitive. The slightest irritation will arouse this sensibility and produce a spasmodic contraction of the sphincter vaginal muscle, thus effectually closing the vagina. Roux, Dupuytren, and Burns, of Glasgow, first noted and described this peculiar nervous affection, and the surgical operation which they adopted for its removal is the one now most generally approved by the profession. Subsequently, Scazzoni and Simpson insisted upon the importance of a thorough investigation of the causes and nature of this disease, and, in 1861, Michon, Debout, and Huguier, more accurately defined it, and Sims designated it *vaginismus*.

Concerning the ultimate cause of this disease, physicians varied in their opinions, and it is remarkable that, while some concentrated their attention upon the morbid condition of the pubic nerve, and the others directed their efforts solely to relieve the muscular spasm, both classes were led to the same operative procedure.

1713. **Causes.** Vaginismus may be either symptomatic—a manifestation of some uterine disorder—or idiopathic. The causes which are recorded as having induced this disease are (1) chronic inflammation of the cervix and vagina, (2) the hysterical diathesis, (3) eruptions on the vulva, (4) fissure of the anus, (5) excavations or fissures at the vulva, (6) tubercle of the meatus, and (7) neuroma. It will be observed that the causes enumerated may produce vaginismus in two ways, namely, *directly*, by mechanical irritation, or *indirectly*, by producing a discharge which inflames the membrane and thus renders the imbedded nerve-filaments morbidly sensitive.

As Dr. Sims has remarked, there is “no disease capable of producing so much unhappiness to both parties of the marriage contract, and I am happy to state that I know of no serious trouble that can be so easily, safely, and so certainly, cured.” Sterility is a frequent attendant of this disorder.

The duration of vaginismus is variable, depending, to a great extent, upon its cause. Sometimes it is only a temporary

symptom of some uterine disorder. Again it may remain for a considerable time, even twenty-five or thirty years, and in rare instances it will become a permanent condition unless a surgical operation be resorted to.

1714. **Symptoms.** The distinguishing symptom of this disorder is the excessive pain and nervous apprehension experienced upon attempting sexual intercourse. Sometimes there is a tendency to spasm of the vaginal sphincter, when the genital fissure is washed. When these symptoms are marked and an examination is attempted, it is often impossible to explore the vaginal canal with the finger unless the patient be under the influence of an anæsthetic. But if the finger be forced into the vagina, the violent contraction of the sphincter muscle can be distinctly felt, and the patient will complain of severe pain, and manifest intense nervous disturbance.

1715. **Treatment.** In the mildest forms of this disorder, soothing applications to the affected parts will alone be necessary to effect a cure, and in some instances a mere change of scene or habit, pleasant associations and surroundings, healthful exercise, and the use of tonics, will eradicate the disorder without resorting to local treatment. I can advise no better tonic nervine than my Favorite Prescription, and it is especially beneficial in the peculiar nervous diseases affecting the female genital organs.

For local treatment, use warm water freely as a vaginal injection, and follow with a lotion composed of two teaspoonfuls of laudanum to four ounces of glycerine and two ounces of water. Fifteen grains of acetate of lead (sugar of lead) may be substituted for the laudanum. In cases where the irritability is more intense, the use of Sims's vaginal dilator will, many times, render a surgical operation unnecessary. The dilator consists simply of a glass tube, which is daily introduced into the vagina and left there as many hours as possible. It will distend the vagina and gradually overcome the morbid sensitiveness of the membrane. The soothing lotion above advised should be used at least twice each day. While the patient is under treatment she must live apart from her husband. I have pursued this course of treatment in a large number of cases, and have found it generally successful. In fact, in all my experience in treating

this affection, I have found it necessary to resort to a surgical operation in only thirteen cases. In these, the division of the sphincter vaginal muscle, with the removal of the remains of the hymen, as proposed by Dr. Sims, followed by the use of the glass dilator and proper lotions, proved successful in curing the disease.

TUMORS OF THE UTERUS AND OVARIES.

1716. The uterus is oftentimes the seat of morbid growths of tissue, called *tumors*, which are sometimes mistaken for an enlargement of that organ, due to pregnancy. These vary in size from a grain of shot to that of the entire uterus at the seventh or eighth month of pregnancy. In texture they are either fibrous, vascular, cancerous, gelatinous, or glandular. Sometimes but one is present; in other cases they appear in great numbers.

1717. **Polypus.** This is the most common form of uterine tumor, and appears in both married and unmarried women. Polypi are outgrowths of the uterine tissue, and may be either of glandular, mucous, or fibrous texture. The cystic, or glandular polypi are soft, pearl-colored bodies, attached to the membrane of the neck of the uterus. These species of polypi are sessile; *i. e.*, they adhere to their point of origin, without the intervention of a pedicel, or stem. Their presence is indicated by a profuse hemorrhage. They are easily destroyed, sometimes even by the dilation of the neck of the uterus, preparatory to examination. Mucous polypi originate in the lining membrane of the upper part of the uterus, but their appearance is very rare. Fibrous, or more properly, fibro-cellular polypus, is the commonest variety of tumor. The polypi are attached to the uterine wall by a small pedicel, or stem. A fine illustration of this variety is given in Fig. 26, Colored Plate IV, the tumor being represented as it appears after being expelled from the uterus, from the mouth of which it is suspended by its pedicel, and is still attached to the inner surface of the womb. The local symptoms of uterine polypus are pain, hemorrhage, and leucorrhœa. The constitutional symptoms are prostration, anæmia, and hectic fever.

1718. **Treatment.** Polypi can only be removed by a surgical operation.

1719. **Fibrous Tumors.** These are morbid growths of tissue, identical in structure with that of the walls of the uterus. The celebrated Paget defines these tumors as fibrous growths invested with a capsule of fibro-cellular tissue so peculiarly dry and loose that when cut the contents escape. It is often difficult to distinguish between fibrous polypi and fibrous tumors proper. The only apparent difference is that the latter are discontinuous with the membranes of the uterus, being connected thereto by its capsule, while the former are continuous with the uterine membrane. I have sometimes found it difficult to distinguish between them, after a careful examination with the most perfect instruments. The attendant symptoms, and the position of the morbid growth, are the surest indications of the species to which the tumor belongs. Thus, a polypus is always accompanied with profuse hemorrhage, while no such symptom attends the development of a fibrous tumor. Again, a fibrous tumor is almost invariably situated between the uterus and rectum. Owing to this fact, it is often mistaken for retroversion of the uterus, and *vice versa*. Numerous cases of this species of tumor have been brought under my observation and treatment. Having procured the most perfect and highly approved instruments for the examination and removal of these tumors, I have generally been successful in relieving my patients.

1720. **Ovarian Tumors.** Tumor is the commonest form of ovarian disease. It generally consists of the development of a sac (sometimes of several) within the ovary, varying in size "from that of a pea to a large sac containing many gallons of fluid." Pathologists generally concur in regarding these cysts, or sacs, as morbid growths or dilatations of the Graafian vesicles. Their contents vary in color and consistency from a pale yellowish, watery fluid, to a turbid, ropy substance, tinged with blood. They also contain solid matter; hence they are termed *compound tumors*. A very mysterious and interesting variety of ovarian tumor is termed *dermoid* cyst, and contains hair, particles of bone, and even rudimentary teeth. That these tumors are not due to conception is proved by the fact that they are sometimes found in young children.

Ovarian tumors generally occur before the age of forty, and their growth is very rapid. Menstruation becomes irregular,

and in the latter stage of the disease is entirely suppressed. As the tumor develops it becomes softer, and the uterus is ante-flected, and the general health is seriously affected.

1721. **Treatment.** The medical treatment of ovarian tumors, or dropsy of the ovaries, has been faithfully tested and found to be ineffectual in dissipating these accumulations. Surgery offers the only reliable means of cure. The methods which I regard as the most reliable for the removal of ovarian tumors are tapping, drainage, injection of the sac, partial excision and ovariectomy, or the complete extirpation and removal of the tumor. Each of these operations possesses certain advantages in particular cases, by a careful application of which a cure is often greatly facilitated. Ovariectomy, when practicable and skillfully performed, is preferable. It should not be undertaken without due deliberation; for while in many cases it offers the only chance for saving life, yet it is dangerous, even when most skillfully performed. This consideration, however, does not deter me from operating as a last resort.

URINARY FISTULA.

1722. A fistula, or false passage, is sometimes formed between the bladder and vagina, between the bladder and uterus, or between the urethra and vagina. This passage allows the urine to escape through it into the vagina, and is a source of great annoyance and suffering. This affection is most commonly due to sloughing, caused by severe and long-continued pressure upon the parts during child-labor. It is also sometimes produced by the unskillful use of forceps and other instruments employed by midwives. Syphilitic and other ulcerations may so destroy the tissues as to form a urinary fistula.

1723. **Treatment.** The treatment is purely surgical, and consists in paring the edges of the opening so as to make them raw, bringing them together and holding the parts thus by means of stitches until they heal. By the aid of a speculum, properly curved scissors, needles with long handles, fine silver wire, and a few other instruments and appliances, the skillful surgeon can close a urinal fistula with almost as much ease as he can close a wound on the surface of the body.

DISORDERS INCIDENT TO PREGNANCY.

1724. While some women pass through the whole period of pregnancy without inconvenience, others suffer from various sympathetic disturbances, as "morning sickness," impaired appetite, constipation, diarrhœa, headache, "heart-burn," fainting fits, difficult breathing, and sometimes convulsions. A strong nervous sympathy exists between the uterus and every part of the system, and this sympathy is greatly intensified by pregnancy, causing the distressing symptoms above mentioned.

1725. **Treatment.** By proper treatment, most of these ills can be obviated and the patient made comfortable. By the moderate use of such a nervine and uterine tonic as my Favorite Prescription, this nervous irritability may be controlled or subdued, and the disagreeable symptoms thus avoided.

While the female is pregnant, she should avoid all compression of the waist and abdomen. For this reason, tight clothing, stays or corsets, must be discarded. She should also carefully regulate her diet, selecting that which is most nutritious and easily digested. Sexual intercourse should be avoided, for although commonly indulged in, and many times with impunity, yet it is liable to be followed by distressing symptoms, as well as by some defect in the mental or physical organization of the offspring.

The nausea which occurs in the morning may generally be avoided by partaking of a little light food and a cup of tea or coffee before leaving the bed. If vomiting occur, and the ejected matter be very acid, carbonate of magnesia, some alkali with aromatics, or charcoal, will afford relief. If constipation or diarrhœa be experienced, the treatment suggested when considering those subjects in a preceding part of this volume should be employed. Want of appetite, headache, or a tendency to convulsions, can be generally overcome by a persistent use of my Favorite Prescription, which should be taken in teaspoonful doses three or four times each day. Indeed, this valuable medicine not only relieves the distressing symptoms which frequently attend the pregnant state, but also prepares the system for the ordeal of parturition (delivery). One or two bottles of this nervine and tonic, used previously to confinement, will, in many

cases, save hours of terrible suffering, besides regulating the system, and thus insuring a speedy recovery. I have received the heartfelt thanks of hundreds of grateful mothers for the inestimable benefit thus conferred. My Favorite Prescription is perfectly safe and harmless to use at all times in the doses above prescribed.

DISEASES OF THE URINARY ORGANS.

1726. Next, if not equal in importance, to the function of the liver is that of the kidneys, the province of which is to remove a large portion of effete and poisonous matter from the system. Morbid changes in the general system are quickly indicated by characteristic urinary deposits, and if we know how to interpret these, they are of great importance in determining disease. (See Urinary Signs.)

INFLAMMATION OF THE KIDNEYS. (NEPHRITIS.)

1727. This affection may be either acute or chronic. The *acute* form of the disease is usually caused by injuries, blows upon the back, strains, irritation from calculi, suppressed perspiration, the employment of irritating diuretics, etc.

1728. **The Symptoms** of the *acute form* are chills, hot and dry skin, thirst, quick and hard pulse, and a deep-seated, throbbing pain in the region of the kidneys. These symptoms soon become very severe. The urine is scanty and highly colored, and the bladder irritable; the patient is unable to lie on the affected side, and the distress is increased upon rising. There is pain extending down into the thigh, numbness and drawing up of the testicle, nausea, vomiting, flatulence, and constipation. If the disease terminates by suppuration, chills will be experienced, and the pain in the region of the kidneys will become very severe; there will also be numbness and weight in the affected side, and pus may appear in the urine.

1729. **Treatment** should be energetic. Diuretics are harmful and *must not* be used. The bowels should be regulated and a spirit vapor-bath given each day. The sweating may be rendered continuous by administering moderate doses of my Compound Extract of Smart-Weed. This remedy, being a powerful anodyne, will also tend to relieve the pain. Until the inflammation is controlled, persist in the use of the tincture or fluid

extract of aconite and gelseminum. Wet packs applied to the back, as hot as can be borne, will be beneficial. As soon as the inflammation yields, give mild, soothing diuretics, as sweet spirits of niter, and pursue an alterative course of treatment. Care should be taken not to induce a relapse by undue exposure. When the pain is intense, three grains of saltpetre, and one-fourth to one-half grain of opium, given every two hours, will give relief.

1730. **Chronic Inflammation of the Kidneys.**

The causes of this affection are obscure, and it is seldom that an uncomplicated case is met with. The advent of this disease is slow, and generally attended by disease of the bladder or ureters. It may follow, however, as a sequence of the acute form.

1731. **Symptoms.** There is weight and a dragging pain in the region of the kidneys, which at times is intense. The general health becomes impaired, there is headache and dyspeptic symptoms, the patient has no energy, and the skin is apt to be dry and harsh. The urine varies in quantity and color, sometimes being scanty, at others profuse, sometimes highly colored, at others very pale and containing more or less abnormal substances. An absolutely correct diagnosis of the disease cannot be made except by microscopical and chemical examinations. (See Urinary Signs.)

1732. **Treatment.** To a great extent this will depend upon the complications involved. The employment of the spirit vapor-bath once a week, or sufficiently often to keep the skin in a good condition, is a valuable auxiliary. Use daily one or two of my Pleasant Purgative Pellets, accompanied by moderate doses of my Golden Medical Discovery. It may be combined or alternated with some of those mild but efficient diuretics, a description of which is to be found in this work. Those of a tonic character should be selected, as buchu (§ 560), pipsissewa (§ 561), gravel-plant (§ 563), or stone-root (§ 565). Harsh medicines are wholly inadmissible.

BRIGHT'S DISEASE OF THE KIDNEYS. (ALBUMINURIA.)

1733. This affection may appear in an *acute* or *chronic* form, either of which is dangerous. The *acute* form is frequently a complication or sequel of scarlet fever, diphtheria, cholera,

typhoid fever, erysipelas, or measles, and is sometimes developed by intemperance. This form is very rapid in its progress, and apt to destroy life by uræmic poisoning—the retention of urea in the system.

1734. **The Symptoms** of the acute form are diminution or suppression of urine, dry skin, chills, thirst, pain in the loins, and general dropsy. Examination of the urine shows the presence of albumen. Unless promptly relieved the patient dies from coma or convulsions.

1735. **Treatment.** No person should be so rash as to attempt the management of this affection without the aid of the best medical skill that can be secured.

1736. **Chronic Form of Bright's Disease.** This form of the disease comes on with less rapidity than the former, is apt to continue for a considerable length of time, and, under the usual modes of treatment, almost invariably proves fatal. The affection is characterized by degeneration of the kidneys. It oftenest appears in males, and seldom occurs during early childhood or extreme old age.

The *causes* are obscure. It may appear as a complication of chronic bronchitis, pulmonary affections, or constitutional syphilis. Intemperance furnishes a large share of the victims, and it is often met with among the poor, who are exposed to hardships and deprivations. Professor Clark has found it as a complication of chronic dysentery.

1737. **Symptoms.** These generally appear so gradually that they excite but little or no concern, until the occurrence of convulsions or dropsy. Frequently, a puffy, watery condition of the face, particularly under the eyes, is the first symptom noticed, and the patient may observe that his urine is diminished in quantity. There will be a deep-seated pain or weakness in the back, loss of flesh, general debility, red, brown, or dingy urine, drowsiness, and perhaps symptoms of heart disease. The patient becomes anæmic, and the breathing is wheezy, accompanied with cough and expectoration. Stupor, apoplexy, and convulsions, are forerunners of a fatal termination. Microscopical and chemical examinations of the urine are the only reliable means of diagnosis, and should be repeatedly made. (See Urinary Signs.)

1738. **Treatment.** Keep the skin in a healthy condition. Wear plenty of woolen clothing, and flannel or silk next to the skin. The diet should be principally albuminous, and pastries avoided. In addition to the suggestions here given, remedies must be judiciously selected by a physician skilled in the treatment of these diseases. Recent investigations are developing some remedies which will doubtless be specific in arresting this heretofore incurable disease. (See Case II, page 426.)

DIABETES. (POLYURIA AND GLYCOSURIA.)

1739. There are two essentially different varieties of this disease, one of which is called *Diabetes Insipidus*, or *Polyuria*, and the other *Diabetes Mellitus*, or *Glycosuria*. The first is characterized by an increase in the amount of urine excreted, and yields readily to proper treatment. The second is characterized by an increase of sugar in the urine, and under ordinary treatment generally proves fatal.

The *causes* are obscure, and therefore not very well understood by the profession.

1740. **Symptoms.** A notable increase of the quantity of urine excreted is the first symptom which attracts the patient's attention. Frequently several quarts, or even gallons, of urine are daily excreted, and it is paler than natural. The patient experiences extraordinary thirst, and has an almost insatiable appetite, though at the same time he loses flesh and strength. The tongue may be either clammy and furred or unnaturally clean and red. The bowels become constipated, and a peculiar odor is observed in the patient's breath and exhales from his body. The skin becomes harsh, dry, and scurfy. There is dizziness, headache, dejection, lassitude, and not unfrequently cataract is observed in one or both eyes. The intellect is blunted, and, as the disease progresses, the emaciation and debility increase, and pulmonary diseases develop; or, perhaps, an uncontrollable diarrhœa sets in, and the patient dies from exhaustion.

1741. **The Treatment** in this, as in other obscure affections, has generally been empirical and unsatisfactory. The function of the skin should be maintained by the use of the

spirit vapor-bath. Great attention should be paid to the diet, which should be highly nutritious, but anything of a sweet or starchy nature must be avoided.

1742. The following articles are wholesome and afford sufficient variety, viz : of animal food,—beefsteak, game, poultry, fish, eggs, cheese, cream, butter ; of vegetables,—spinach, dandelion greens, turnip tops, water-cresses, lettuce, celery, and radishes ; for drinks,—tea, coffee, claret, water, brandy and water, beef-tea, mutton-broth, or water acidulated with tartaric, nitric, citric, muriatic, or phosphoric acid. The *forbidden* articles are oysters, crabs, lobsters, sugar, wheat, rye, corn or oatmeal cakes, rice, potatoes, carrots, beets, peas, beans, pastry, puddings, sweetened custards, apples, pears, peaches, strawberries, currants, etc., also beer, sweet wines, port, rum, gin, and cider. We have many medicines which produce specific effects in this disease, enabling us to treat it with greatly increased success ; but the treatment has to be so varied in individual cases, that it would be useless for me to attempt to instruct the non-professional sufferers in prescribing for themselves.

URINARY DEPOSITS.

1743. In health, the urine holds in solution certain substances which have a definite relation to each other. In disease, the proportions are subject to numerous changes, some ingredients being diminished and others increased. Sometimes the changes are so great that the urine can no longer hold the substances in solution, and they are precipitated in the form of gravel. These changes bear a well-defined relation to disease, and, when correctly understood, inform us of the condition of the system much better, and often much sooner, than we could ascertain it in any other way. To determine the character, extent, and indications, of these urinary changes, we must have recourse to thorough chemical and microscopical examinations. Numerous illustrations of these deposits, as they appear under the microscope, may be found in the "Thoughts Addressed to Invalids," in the appendix to this volume. At the World's Dispensary, urinary examinations form a prominent feature of the methods by which we distinguish diseases, and to this fact I attribute

much of my success in correctly understanding and treating urinary affections.

GRAVEL.

1744. When the solid constituents of the urine are increased to such an extent that they cannot be held in solution, or when abnormal substances are secreted, they are precipitated in small crystals, which, if minute, are called *gravel*, and are passed through the urethra; when of larger size, they are termed *calculi*, or stones. When these substances are formed in the kidneys, they are termed *renal calculi*; when in the bladder, *vesical calculi*. There are several varieties of gravel, each depending upon different conditions of the system for its formation. The two prominent varieties are the red, containing uric acid, and the white, or phosphatic gravel.

1745. **Symptoms.** When the deposits are in the kidneys, there will be pain in the back and loins, occasionally cutting and severe; sometimes it will dart down the course of the ureter to the bladder, and extend to the thighs. When the deposits are in the bladder, there is frequent desire to urinate, with a bearing-down, straining pain; also a sensation as of cutting or scratching in the urethra during urination. In the male, intense pain is often experienced at the end of the penis. When the urine is voided in a vessel and allowed to settle, a gravelly deposit will be seen. It is generally of a red or white color, and the particles vary in size.

1746. **Treatment.** These urinary deposits indicate a general derangement of the system, as well as a local disease. Nutrition is deficient, and some of the excretory organs are not properly performing their functions, or perhaps some portion of the body is being too rapidly wasted.

In order to treat these cases rationally and successfully, it is first necessary to ascertain by microscopical and perhaps chemical examination, the character of the deposit. By such examination, the exact condition of the system, which gives rise to these abnormal products, may be positively determined, and the remedies to be employed will be indicated. (See Urinary Signs.) As the non-professional are not qualified to make such examinations, it would be useless for me to suggest specific treatment for the various forms of this disease.

STONE IN THE BLADDER. (VESICAL CALCULI.)

1747. If the gravelly deposits are not expelled with the urine, they form a nucleus upon which layer after layer is deposited, thus developing stone in the bladder. This disease more frequently appears in men than in women, and in the majority of cases, is developed before the thirtieth year.

1748. **Symptoms.** There is pain in the region of the bladder, which is aggravated by any jolting motion, and which immediately after urinating is very severe. In males there is often very acute pain at the end of the penis. In children, the pain and uneasiness is often so great that they grasp and pull the penis violently. In urinating, the stream is sometimes suddenly arrested, when, by a change of position, it again flows freely. These symptoms are not to be accepted, however, as conclusive evidence of the existence of stone in the bladder. The surgeon, by exploring the bladder with a steel sound, detects stone with certainty, an audible click being produced when the instrument comes in contact with it.

1749. **Treatment.** In persons subject to this disease, the formation of stone may be prevented by appropriate treatment, but after the stone is once developed, seldom will any treatment but a surgical operation prove effectual. A belief that calculi can be dissolved in the bladder has been entertained by some distinguished practitioners, but the attempts at accomplishing this have not been successful.

The surgical means employed to remove calculi are various. In some cases the stone may be crushed by an instrument called the *lithotrite*, which is introduced into the bladder through the previously dilated urethra. The pieces are removed through the urethra. The process is called *lithotripsy*. Another method consists in cutting into the bladder and removing the whole stone. This method is called *lithotomy*. It is variously modified by different surgeons. The method which I regard as the least dangerous, and the one which has proved most successful, when the stone has not been of extraordinary size, may be termed the *modified median operation*. The operator, having made a perpendicular incision in the median line of the perineum, between the root of the penis and the rectum (see Fig. 107),

opens the urethra in front of the bladder. When the opening in the urethra is nearly an inch in length, the surgeon introduces his forefinger and very gradually dilates the undivided portion of that canal (the urethra) and the neck of the bladder, until the opening is sufficiently large to admit a pair of forceps, by which the stone may be withdrawn. If the stone be too large to permit of extraction through the undivided portion of the urethra, it may be crushed with a lithotrite and the pieces removed. This is seldom necessary, however, for I have found, contrary to the general belief, that if the canal be dilated to its full extent, stones measuring more than an inch in diameter may be removed entire, without lacerating the canal. Surgeons generally perform this operation hastily, and hence many times fail to remove stones which might readily be extracted, if the urethra and neck of the bladder were gently and cautiously dilated by a semi-rotary movement of the finger. The advantage of this method over the *lateral operation*, which is generally practiced by American surgeons, is that it avoids cutting the prostate gland (see Fig. 107), does not produce so great a shock to the system, is not so liable to be followed by urinary infiltration of the surrounding tissues, thus causing inflammation and even suppuration, and is attended with very little or no hemorrhage, while the ordinary operation sometimes occasions exhaustive bleeding. An operation similar to that described may be more easily performed upon the female, and is followed by equally favorable results.

INFLAMMATION OF THE BLADDER. (CYSTITIS.)

1750. This affection seldom appears in the acute form, except in connection with gonorrhœa. The portion of the bladder nearest its neck is oftenest involved.

1751. **Symptoms.** There is intense pain in the region of the bladder, sensitiveness to pressure, and sometimes pain in the perineum, testicles, and loins. There is almost a constant desire to urinate, but the act is accompanied with severe pain and a bearing-down sensation. During the first stage of the disease, the urine is apt to be scanty and highly colored, but afterwards becomes red, perhaps bloody, and finally loaded with muco-purulent

matter. There is generally considerable febrile disturbance, which is at times severe.

1752. **Treatment.** Absolute rest is a primary essential. A spirit vapor-bath should be given, and the sweating continued by administering my Extract of Smart-Weed, which will also relieve the pain. Hot fomentations over the region of the bladder are beneficial. As a brisk cathartic, large doses of my Pleasant Purgative Pellets should be given during the early stage of the disease. The thirst may be allayed by cooling drinks. Give a pretty large dose of aconite and gelseminum every hour. When the acute symptoms disappear, mild, unirritating diuretics may be administered, as an infusion of stone-root, marsh-mallow, water-melon or pumpkin seeds.

1753. **Chronic Inflammation of the Bladder.** This affection, also called *cystirrhœa* or *catarrh of the bladder*, is an inflammation of the mucous lining of this organ. It may occur at any period of life, but it oftenest appears in the aged, and is usually associated with some obstruction to the flow of urine.

1754. **Causes.** It may be due to colds, injuries, irritating diuretics, injections, extension of disease from the kidneys or adjacent organs, intemperance, severe horseback riding, recession of cutaneous affections, gout, rheumatism, etc., but it more frequently results from stricture of the urethra, enlarged prostate gland, gravel, and gonorrhœa. It is also caused by a habitual retention of the urine, and sometimes results from masturbation.

1755. **Symptoms.** There is an uneasy sensation in the bladder, and heaviness and sometimes pain and weakness in the back and loins. The urine is scanty, and although there is a desire to void it frequently, it is passed with difficulty. If allowed to stand, it deposits more or less mucus, which is sometimes mistaken for semen. As the disease progresses, the quantity of the mucus increases. It is very viscid, and adheres to the sides of the vessel so that if an attempt be made to pour it out, it forms long, tenacious, ropy threads. Sometimes the quantity of mucus is so great that on exposure to cold the whole mass becomes semi-solid, and resembles the white of an egg. The excreted urine is alkaline, acrid, exhales a strong odor of ammonia, and soon becomes exceedingly fetid. Sometimes the urine becomes so thick that great difficulty is experienced in

expelling it from the bladder. Nocturnal emissions, impotency, and loss of sexual desire, are apt to ensue. Occasionally, there will be a spasmodic contraction of the bladder, with straining and a sensation of scalding in the urethra, and sometimes the patient is unable to urinate.

1756. **Treatment.** A strict observance of the rules of hygiene is essential to a cure. We must ascertain the cause, if possible, remove it, and thus prevent it from perpetuating the disease. The bowels should be kept regular, and if costive, a small dose of my Purgative Pellets should be daily administered. The skin should be kept healthy and vigorous by frequent baths. The spirit vapor-bath will be beneficial if the skin be dry and husky. The various causes and conditions involved in different cases demand corresponding modifications of treatment; hence, it is useless for me to attempt to teach the non-professional how to treat this complex disease. I have succeeded in curing many very severe cases without seeing the patient, being guided in my prescriptions by the indications furnished by microscopical and chemical examinations of the urine. (See Urinary Signs.)

INCONTINENCE OF URINE. (ENURESIS.)

1757. Two forms of this annoying disease are observed. In one there is inability to retain the urine, and it escapes when the patient is laughing, sneezing, coughing, etc., or it constantly passes away in small quantities. It is generally due to weakness of the generative organs, paralysis of the bladder, pressure from tumors, falling of the womb, pregnancy, masturbation, excessive venery, etc. The other form of the disease more commonly appears in children, and is characterized by nocturnal incontinence, or "*wetting the bed.*" In either form the urine is discharged involuntarily.

1758. **Treatment.** If the disease be due to weakness of those parts or paralysis of the neck of the bladder, those conditions must be remedied; if to tumors, a surgical operation will probably be necessary; if it be caused by falling of the womb, the treatment suggested for that affection must be employed. If it be induced by venereal excess or masturbation, the cause should be avoided and proper tonic treatment applied, to strengthen the debilitated parts.

1759. When the affection occurs in children, the cause must, if possible, be ascertained and removed. If it be due to worms, give anthelmintics (§ 487); if to irritation of the bladder, the treatment recommended for that complaint is appropriate; if to spinal irritation, bathe the back, loins, and genitals, with cold water before going to bed. Establish a habit in the child of waking at certain hours to evacuate the bladder, and compel him to avoid hearty suppers and to sleep on a hard bed. Give him one of my Purgative Pellets each night. If they act too freely on the bowels, give one every other night. If he be anæmic, administer five drops of the tincture of iron three times a day.

The causes are sometimes so obscure that the investigation of a skillful physician is require, to ascertain them and determine the proper treatment.

ENLARGEMENT OF THE PROSTATE GLAND.

1760. Diseases of the prostate gland are of more frequent occurrence than is generally supposed, and usually appear in persons advanced in years. All the affections of this gland generally begin with enlargement, or terminate in it. This disease exerts a great influence upon the genitals, diminishing the sexual power and desire, and often producing complete impotency.

1761. **Causes.** One of the most frequent causes of this disease is abuse of the genital organs. Masturbation, excessive coition, licentiousness (particularly during advanced age), gonorrhœa, stricture, inflammation of the neck of the bladder, horseback riding, the harsh or improper employment of the catheter or bongie, intemperance, habitual retention of the urine, —in brief, any thing that irritates this gland is liable to cause its enlargement.

1762. **Symptoms.** Sometimes the disease may exist for years without causing any trouble, or even attracting the victim's attention, until a sudden retention of the urine is experienced. One of the earliest symptoms observed is, that the urine flows less readily than before, and more force is required to produce the ordinary sized stream, or to project it from the body. The calls to urinate are more frequent, the urine flows slowly, and there is a disagreeable feeling in the parts after it is

voided. As the disease progresses, an uneasy bearing-down sensation is experienced in the perineum and about the pubes. Ofttimes there is a sensation as of a foreign substance in the rectum, and piles are developed. In urinating, the patient is obliged to strain and assume different postures to favor the flow, and in some cases the urine cannot be passed without the aid of the catheter. The vital powers fail, the gland suppurates, and hemorrhage or uræmic poisoning terminates the patient's existence. When the symptoms are insufficient to form a correct diagnosis, the presence of this disease may be readily determined by passing the fingers into the rectum, or by the employment of the catheter.

1763. **Treatment.** Retention of the urine aggravates the disease. The patient should be instructed in the use of the catheter, so that he may obtain speedy relief whenever necessary. All irritation of the urinary organs should be avoided, and an alterative course of treatment pursued upon the same principle that it is employed to remove other species of enlargements. Use my Golden Medical Discovery, to each bottle of which add half an ounce of bromide of potash or muriate of ammonia. Take also a sufficient number of the Pellets to keep the bowels regular. This is very essential, for costiveness is a serious complication. If the general health decline, take such tonics as iron, quinine, nux vomica, etc. If there be considerable irritation of the neck of the bladder and the gland, appropriate doses of poison hemlock (§ 482) may be administered. One grain of the solid extract of poison hemlock, dissolved in a tablespoonful of warm water, should be injected into the urethra three or four times a day. Care should be taken to throw it as far as the prostate gland, and, by pressing upon the penis with the thumb and finger, hold the injection in the urethra a little time. In regard to the kind of catheter, I advise the use of either the gum elastic or the silver one. I think the silver one is preferable for the practitioner, but when employed by patients, the liability to do injury is not so great with the gum elastic. The above constitutes all the treatment which the patient can apply, and, indeed, it has been attended with extraordinary success. When these measures fail, I employ other modes of treatment, but they are of too

complicated a character to be of either service or interest to the non-professional reader.

VENEREAL DISEASES. (GONORRHEA AND SYPHILIS.)

1764. Concerning the origin and nature of these maladies, there is a great diversity of opinion. Herodotus and Hippocrates mention them, thus clearly proving that these diseases were known to the ancients. During the last few centuries, these diseases have been exceedingly prevalent. It is not fully determined whether the various venereal diseases are due to one poison or to several. Some medical writers claim that there is but one poison, and that the varieties of venereal affections are simply modifications of one disease, while others believe that these several disorders are due to different poisons, and are therefore distinct diseases.

The celebrated John Hunter believed that there was but one venereal poison, and prior to 1857 was supported in this view by the renowned Ricord. Sigmund, Von Baerensprung, Rollet, Diday, Michaelis, and others, who have thoroughly investigated the subject, do not agree. The results of Dr. Marston's late researches are in favor of the unity doctrine, and in my own experience circumstances have occurred which can only be explained upon that theory.

1765. This theory supposes that when the poison comes in contact with the unbroken surface of the mucous membrane, it produces gonorrhœa, or clap; and when it comes in contact with an abraded surface, it produces syphilis, or pox. On the contrary, those who advocate the plurality hypothesis affirm that gonorrhœa and syphilis are produced by distinct poisons coming in contact with either mucous or abraded membranes.

1766. Another subject of dispute is whether constitutional infection is ever caused by clap or soft chancre (chancroid). The advocates of the former theory claim that the system may be infected with either clap, chancroid, or chancre, while those who believe in the plurality theory hold that chancre (hard chancre) is the only source of infection. However, I am inclined to the belief that constitutional infection may, and does sometimes, result from clap and soft chancre, as well as from what is known as the true, hard, Hunterian, or, infecting chancre.

Therefore, so long as we are liable to err, it is best to be on the safe side; hence I should treat every case of this kind as if constitutional infection were certain to occur, and take the proper steps for its prevention. The importance of such a course is illustrated by facts which are daily coming under my observation. Individuals have been lulled into fancied security by their medical advisers, have rejoiced at the disappearance of the local symptoms, and neglected to pursue a thorough course of *constitutional* treatment, upon which safety alone depends. But the disease still lurks in the system and gradually increases in strength and virulence, until, finally, the deceived victim is overwhelmed by a multitude of affections collectively termed *secondary syphilis*.

1767. Whichever theory be correct, it is certain that all venereal disease is the result of contagion, the virus being communicated by actual contact. Notwithstanding the most thorough investigation, scientists have failed to discover a law which completely governs the action of this virus. We cannot accurately determine the origin of venereal disease, for it is involved in obscurity; but doubtless it arose from promiscuous and excessive venery, under certain conditions which favored its development.

1768. **Gonorrhœa.** This form of venereal disease is a specific inflammation of the lining membrane of the urethra, or water-passage. In females, it affects the mucous membrane of the vagina, and may extend to that of the urethra. It is communicated from one person to another by sexual intercourse. It is very rarely imparted in any other manner, though it can be communicated by the contact of the least quantity of virus with any of the mucous membranes. Sometimes sexual intercourse with a female afflicted with leucorrhœa produces a disease in the male which is apparently similar to gonorrhœa. Gonorrhœa is usually developed in from three to eight days after exposure to the infection. Sometimes the inflammation is limited to the mucous membrane covering the glans penis, and is then called *Balanitis*.

1769. **Symptoms.** In from two to ten days after infection, the victim experiences an itching and uneasy sensation in the urethra, the mucous membrane appears unusually red, the

lips of the urothral orifice are swollen, a scalding sensation is experienced in voiding the urine, and there is a profuse discharge of thick, yellow matter. The head of the penis is swollen and the stream of urine divides. The warmth of the bed causes troublesome erections, and, as the inflamed condition of the urethra will not permit extension, the penis has a crooked appearance, curving downward, and is exceedingly painful (chor-dee). If the disease be not cured while in its early stages, it may become complicated with inflammation of the bladder, enlargement of the glands in the groin, stricture of the urethra, or with swelling and inflammation of the testicles. The inflammation may extend to the whole lining membrane of the bladder, causing a frequent desire to urinate. If cleanliness be not observed, the irritating discharge (by contact with the surface) produces warts, or, being re-absorbed into the system, occasions fever, rheumatism, eruptions, etc. The same length of time will be required for the development of the local symptoms in the female as in the male. She will experience an itching or uneasiness in the urethra, a sense of fullness in the vagina, and in a day or two there will be a scalding sensation in voiding the urine, chills, and feverish symptoms,—evidences of a general disturbance. The lining of the urethral orifice, and that of the vagina and outer lips, is red and swollen, while the inner lips are thickened. If treatment be not promptly applied, the constitutional disturbance increases, the local inflammation becomes more intense, and there is a copious discharge of thick, yellow, poisonous matter. The symptoms being similar to those of leucorrhœa and menstruation, she does not seek relief until they have become violent. The inflammation may extend to the womb and Fallopian tubes, and the ovaries be sympathetically affected. The urethra, and even the bladder, may become involved, in which case the symptoms are essentially the same as in the male.

1770. **Treatment.** The use of injections in the urethra (of the male) and vagina (of the female) is very beneficial. In the early stages of the disease, an injection, composed of one drachm of the tincture or fluid extract of aconite *leaves* and an ounce of water, will be very efficacious, and will usually subdue the pain and inflammation in from two to four days. It should

then be discontinued, and a solution of three grains of permanganate of potash in an ounce of water employed.

The general treatment should be commenced by administering the tincture of staphisagria, two drachms of which should be added to four ounces of water, and a teaspoonful given every four hours. If this tincture be not readily obtained, take my Golden Medical Discovery, to each bottle of which add two ounces of spirits of nitre and three drachms of the fluid extract of gelseminum. Of this mixture take a teaspoonful every four hours. An ounce of the acetate of potash may be substituted for the nitre. The Purgative Pellets will be useful in keeping the bowels regular. To relieve and prevent painful erections (chordee), take from ten to fifteen grains of bromide of potash dissolved in an ounce of camphor water each night. Fomentations, applied to the external genital parts, are beneficial. In consequence of constitutional peculiarities, the above treatment may not prove successful, in which case a skillful physician should be consulted.

GLEET. (BLENNORRHOEA.)

1771. This disease is indicated by a chronic discharge of mucus from the urethra. It is the result of badly-treated clap, or repeated attacks of the same, in persons of a scrofulous diathesis or debilitated constitutions. It is sometimes perpetuated by stricture or disease of the prostate gland. All the violent symptoms of clap subside, leaving the walls of the urethra thickened. The chronic discharge debilitates the system, and is a constant source of annoyance. There are apt to be fibrous deposits, which narrow the urethral passage and interfere with the flow of the urine; or there may be a granulated condition of the lining membrane of the urethra. The discharge is usually white, sometimes profuse, and at others scarcely perceptible. Any irritation makes it yellow. The use of alcoholic stimulants, sexual intercourse, violent exercise, exposure to sudden changes of temperature, etc., are followed by a scalding sensation in urinating, a purulent discharge, and all the symptoms of the acute stage of the disease. In the female, the symptoms of this disease are similar to those of leucorrhœa, and only a knowledge of the previous history of the case can enable us to distinguish between

them. This disease is apt to be very intractable; hence it should always be treated by a physician who has had a large experience in the management of chronic maladies.

SWELLED TESTICLES. (EPIDIDYMITIS.)

1772. This is a frequent complication of gonorrhœa, especially in the later stages of that disease. It is caused by the extension of the inflammation to the testicle, and is liable to follow the use of strong injections. The left testicle is oftener affected, and the development of the disease is attended by pain, swelling, and more or less fever. The acute form sometimes becomes chronic, and the testicle remains enlarged, though the other symptoms are mitigated.

1773. **Treatment.** To avoid irritating the affected parts, the patient should assume the recumbent position and the testicles be supported by a pillow or cushion. In the majority of cases, warm applications are preferable to cold ones. For this purpose, a lotion composed of one ounce of muriate of ammonia to a pint of water will prove very beneficial. If the pain be severe, it will be necessary to apply and administer anodynes. As a liniment and sedative, my Compound Extract of Smart-Weed is not excelled. If the disease be not promptly arrested, and the enlargement reduced, it will be difficult to effect a cure. It is, therefore, necessary to employ a skillful and experienced physician.

STRICTURE OF THE URETHRA.

1774. As we have before stated, this disease is generally a sequel or complication of gonorrhœa, but it may be due to other causes. It is termed *spasmodic* or *organic* stricture, according to its character. The former is not attended by pain, appears suddenly, as suddenly disappears, and is caused by a spasmodic contraction of the circular muscular fibers of the urethra, while the latter is occasioned by a gradual accumulation of lymph around the urethra. The deposited matter, becoming organized as a part of the tissues, causes a permanent diminution of the caliber of the urethral passage.

1775. **Symptoms.** The patient experiences difficulty in voiding the urine, several ineffectual efforts being made before it

will flow. The stream is diminished in size, of a flattened or spiral form, or divided into two or more parts, and does not flow with the usual force.

1776. The treatment of stricture varies so much with the peculiarities of individual cases, and is generally so purely surgical in character, that it is useless for me to attempt to teach the non-professional how to apply it. A competent physician should be consulted by those suffering from this affection.

SYPHILIS.

1777. With the exception of cancer, this is the worst of all diseases. Few persons have any idea of the extent to which it prevails. In its countless forms, it is sapping the sources of vitality and destroying beauty, vigor, and manhood. When the system is once inoculated with syphilitic poison, unless the effects be promptly counteracted, the disease increases in virulence, manifests itself in multifarious forms, and may be transmitted to posterity. One generation may escape its effects, the disease cropping out in the next, and those affected, being ignorant of its nature, allow it to progress. By the ordinary treatment of this disease, with mercury and sarsaparilla, the outward signs may disappear for a time, but, sooner or later, they will return, and perhaps with greater intensity. Many skin affections are traceable to syphilitic infection. No tissue of the body escapes the ravages of this dreadful poison. The bones and muscles are destroyed by its corroding influence, and the hydra-headed monster gloats on human misery and deformity! The infected husband transmits the disease to his wife, and the indelible impress is thus stamped upon the germ. An infected wife imparts it to her husband and child, or the infant may become infected through the milk of its nurse. It may also be contracted through impure vaccination, or in any manner by which the virus is brought into contact with an abraded surface.

1778. **Symptoms.** Three successive stages mark the progress of this disease, viz: the primary, secondary, and tertiary. During the primary stage, chancres, or virulent ulcers, appear at the point of infection, and the disease is purely local, while in the later stages it is constitutional. The period intervening between the time of exposure and the appearance of the local

Plate V.

Fig 27

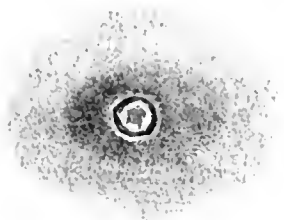


Fig. 29.

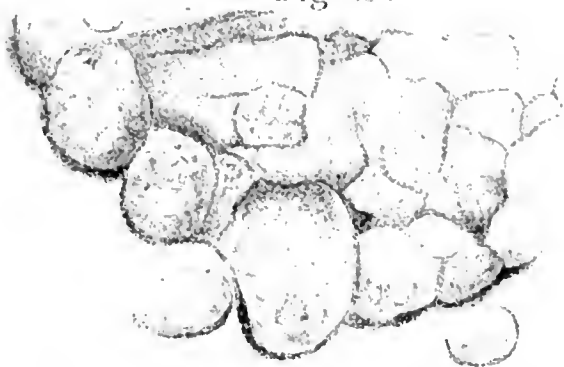


Fig 28

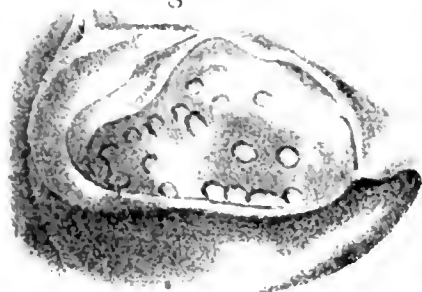


Fig 30



Fig. 31

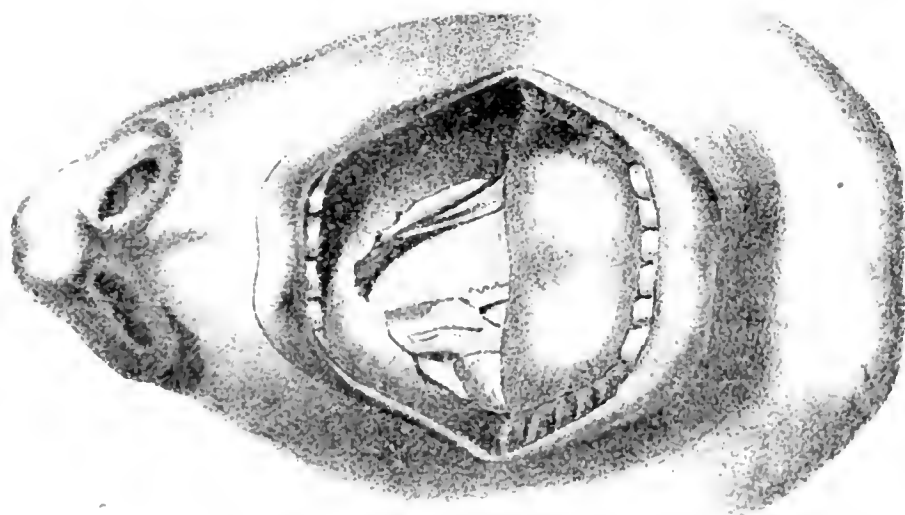
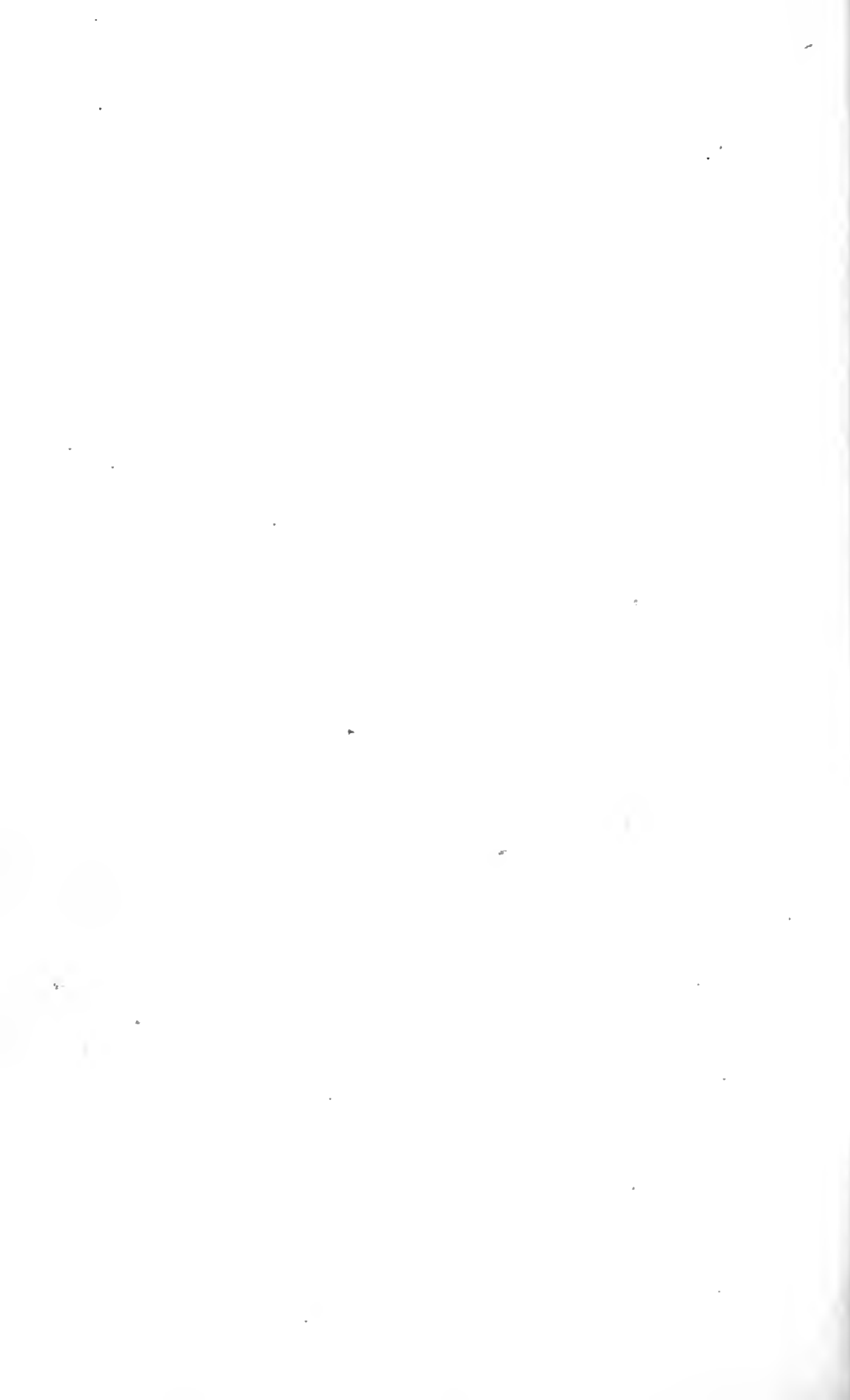


Fig 32



manifestations of the disease, will vary from one to eight days—seldom being longer. At first there is a little redness, then a pustule is formed, which soon breaks, leaving an open sore, usually located under the covering and near the bridle of the penis, in the male, or on the external genital parts, in the vagina, or on the mouth of the uterus, in the female. The infecting, or hard *chancre* is always single, and surrounded by a hard border. This variety is represented in Fig. 27, Colored Plate V. In this form, the local sore is small and usually unobserved until the virus enters the circulation and produces constitutional symptoms. Of the soft variety of chancre, two or more frequently appear at the same time. They sometimes coalesce and cause considerable destruction of the tissues, but are not surrounded by a hard border. This variety is well illustrated in Fig. 28, Colored Plate V. Fig. 24, Colored Plate IV, represents this form as it appears on the mouth of the womb.

1779. After the local sores have existed for some time, little hard lumps are noticed in the groin, which enlarge and merge into one another until a blue tumor, called a *bubo*, is formed. It frequently attains a size as large as a goose egg, and sometimes disappears in a few weeks; at other times it breaks and discharges, forming an open sore, which is healed with great difficulty. During the secondary stage of the disease, an eruption of copper-colored spots may appear upon the face and body. The hair sometimes falls out, and the glands in the back of the neck enlarge, becoming very painful. In the course of six or eight months, ulcers appear in the mouth and throat. They destroy the soft parts, as seen in Fig. 32, Colored Plate V, which is a good representation of these sores. Syphilitic pains are experienced in different parts of the system, especially harassing the patient at night. The eyes are liable to become affected. Inflammation of the iris, a condition well represented in Fig. 31, Colored Plate V, is a common complication. Lumps called *nodes* form on the bones and finally ulcerate, causing decay and exfoliation. The bones of the shin, elbow, and forehead, are most frequently affected. A fine illustration of syphilitic ulceration over the superficial bones is given in Fig. 30, Colored Plate V.

Syphilitic catarrh, or *ozæna*, is a very common affection.

Ulcers appear in the nose, and destroy the surrounding parts, so that the nasal passages and mouth often form one cavity, presenting a hideous appearance. The body is disfigured by eruptions, some of which appear in clusters, while others are spread over the whole surface of the body. In some cases they fester and break, and hard, thickened crusts are formed. They are exceedingly indolent and generally attended by itching. It is a peculiarity of these eruptions that one form often changes into another. Large morbid growths may appear about the arms or upon the external genital parts of the female, and sometimes elsewhere. These are represented in Fig. 29, Colored Plate V.

1780. **Treatment.** Under no circumstances can the patient experience a greater necessity for skillful treatment than in this disease; but, alas! how often is he duped by the promises of quacks who assure a speedy cure! He swallows their useless drugs, only to find that his condition is but temporarily improved, if at all. By many practitioners, bichloride of mercury (corrosive sublimate), iodide of mercury, and other kindred preparations, are regarded as the most efficacious remedies for this disease. It has, however, been clearly proved that this affection can be cured in less time by other agents.

1781. *In the primary stage*, the treatment which should be applied is as follows: Thoroughly cauterize the sore, thus destroying its specific character. Nitric acid, nitrate of silver, and chloride of zinc, are the most efficient caustics. The first is preferable, and should be applied as follows: Dip a small pine stick into the acid, and, after wiping off the superabundant liquid, apply it to every part of the sore. Afterwards apply a dressing of lint, saturated with a mixture composed of half a drachm of carbolic acid and an ounce of glycerine. If the sore has not commenced to heal at the end of a week, the cauterization should be repeated.

1782. Constitutional treatment is indispensable, and must be persisted in even when no visible trace of the disease remains. No matter in what form the disease manifests itself, or what the complications may be, the cure will mainly depend on the constitutional treatment. This will, however, be modified by circumstances and individual peculiarities.

The diet must be nutritious. The skin, liver, and kidneys, should be kept active, to assist in eliminating the poison. Frequent bathing is beneficial, and the sulphur, acid, Turkish, and spirit vapor-baths are preferable. As constitutional treatment, my Golden Medical Discovery is an agent of inestimable value in this affection, although there are cases in which it may fail to effect a cure. It could not be expected that a remedy adapted to so many diseases should be sufficiently powerful to eradicate this terrible scourge in every instance. To accomplish such a result, it would be necessary to introduce certain ingredients which would render it harmful, if misapplied, as it might be by non-professional persons.

1783. The efficacy of the Discovery may be increased in severe or obstinate cases, by adding to each bottle from one-half to an ounce of the iodide of potassium. If the kidneys be torpid, instead of the iodide, the same quantity of the acetate of potassium may be added to each bottle. The bowels should be kept regular; and for this purpose, as well as to increase the efficacy of the other remedies, small doses of the Purgative Pellets should be daily administered. They are powerfully alterative when taken in such small doses that they do not produce active purging, and their use should be continued for a protracted period. The treatment must be persisted in for a considerable time before its beneficial effects will be apparent. If this treatment should fail, in consequence of constitutional peculiarities or extraordinary complications, a skillful physician should be consulted. In addition to the constitutional treatment already advised, some of the complications require special attention.

Treatment of Buboes. To prevent suppuration, treatment must be instituted as soon as they appear. Compresses, wet in a solution composed of half an ounce of muriate of ammonia, three drachms of the fluid extract of belladonna, and a pint of water, are beneficial, and should be continuously applied. The tumor may be scattered by painting it once a day with tincture of iodine.

Eruptions. The treatment of these should be mainly constitutional. Perfect cleanliness should be observed, and the sulphur, spirit vapor, or alkaline bath freely used. Good diet and the persistent use of alteratives will generally prove successful in removing this complication.

The morbid growths (represented in Fig. 29, Colored Plate V) may be removed by the application of chromic or nitric acid.

For *Syphilitic Catarrh*, employ the constitutional treatment already advised, and use Dr. Sage's Catarrh Remedy. The nasal passages should also be cleansed, once a day, with a lotion composed of five or ten grains of permanganate of potash dissolved in a pint of water.

For the treatment of *Syphilitic Iritis*, see ¶ 1413.

Those *secondary ulcers*, which occur over the superficial bones, can only be cured by the protracted use of the best alteratives (¶ 458) and proper local applications. Cleanse the sore daily with Castile-soap and warm water, and then apply a lotion composed of ten grains of carbolic acid and one ounce of glycerine. Whatever applications may be employed for any of the local manifestations of syphilis, the patient must remember that his main reliance must be upon constitutional treatment.

ABUSE OF THE MALE REPRODUCTIVE ORGANS.*

1784. A general idea of the relative size and position of the male reproductive organs may be obtained by referring to the illustration on page 218. It will be advantageous to study the anatomy of these organs, in order that their natural functions may be fully comprehended, and the disorders to which they are liable more clearly understood. It is admitted that the abuse of the reproductive organs results in serious nervous, as well as general physical, derangement, and ultimately destroys the health. It is, therefore, desirable to give special consideration to the essential parts of the male generative system, and especially to the structure and office of the testicles.

1785. The word *testicle* is derived from *testiculus*, the diminutive of *testis*, which signifies a "witness;" hence the testicles are evidences of virility, or the power of procreation. The testes are two small, glandular organs, situated in the scrotum, or sack of skin, hanging beneath the root of the penis. Each testicle is of an oval form, and suspended by a vascular, nervous structure, called the *spermatic cord*. The function of the testes is to

* The abuse and consequent diseases of the generative organs of the female have been fully considered in a preceding part of this volume. (See "Masturbation a Fruitful Cause of Disease in Women.")

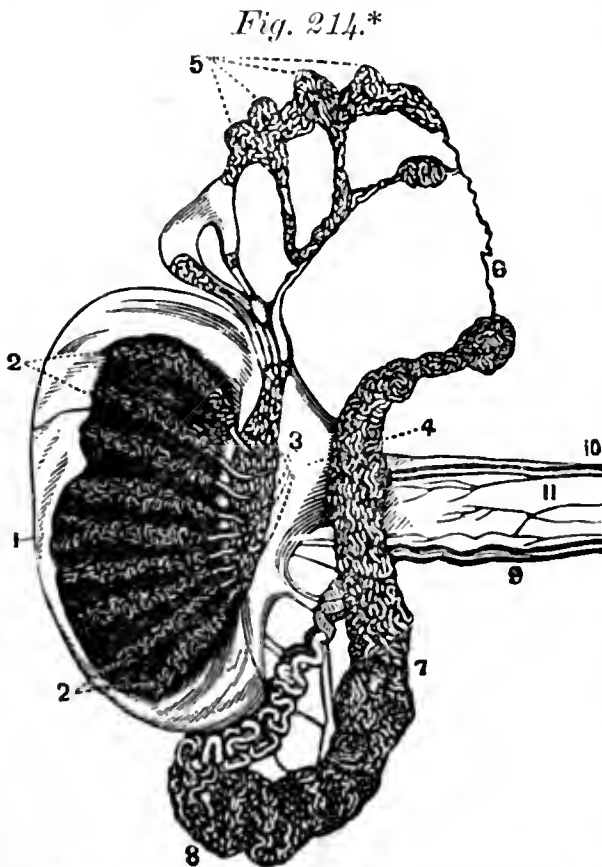
secrete sperm (semen), a vital, quickening fluid, of a whitish color and peculiar odor.

1786. **Development of the Testicles in the Abdomen.** The testicles, at an early period of intro-uterine life, are in the abdomen of the fœtus, and directly beneath the kidneys. At the fifth or sixth month of pregnancy, they pass downward to the lower part of the abdomen, and each testicle, from its lower part, sends forth a cord which is composed of cellular tissue and ligamentous fibers, and called the *gubernaculum testis*. Each cord passes through the inguinal canal, which is only two inches in length, proceeds obliquely downward, inward, and forward, out of the lower part of the abdomen, and terminates

in the bottom of the scrotum. In the eighth month of pregnancy, the testicles pass through the abdominal canals and reach the base of the scrotum, two or three weeks before birth. Occasionally, one or both are retained in the body until the fifteenth or seventeenth year (although they seldom *permanently* remain). This circumstance, however, does not always prevent procreation.

1787. Structure of the Testicle.

Fig. 214 is an excellent illustration of the internal



A representation of the internal structure of a Testicle partially unraveled.

internal structure of the human testicle, when its several parts are made distinct by being injected with mercury, and then so dissected

* The thirty-two distinct representations given in the Colored Plates, when added to the preceding number of Wood-engravings, make this Fig. 214.

as to be exposed to view. The numerals, 1, 2, 2, refer to a bundle of seminal tubes, each of which is about seventeen feet long and $\frac{1}{176}$ of an inch in diameter. As represented in the figure, each tube is remarkably convoluted, having the appearance of a miniature intestine, and converges, as represented by the dotted lines, at 3; each bundle forms a single straight tube, which is called the *vasum rectum*. The *vasa recta* are twice the diameter of the seminiferous tubes, and are so woven together as to form a complete plexus, called *rete testis*, which signifies a network of interlacing vessels. The body which is thus formed (represented at 4) is an oblong eminence called the *corpus Highmorianum*. The tubes that compose this part unite to form the *vasa efferentia* (carrying vessels), which, at 5, constitute little vascular cones, uniting to form a single tube, as seen at 6. This vessel remains single for a short distance, but soon becomes convoluted, having the appearance of an arched structure, in the back part of the testicle, and is termed the *epididymis*. The *vas deferens* (vessel bearing away), represented by 7 and 8, is the excretory canal of the testicle. It arises from the epididymis, and, as will be seen, at 8 becomes less twisted in its course, and at 9 is straight, and parallel to 10 and 11, the spermatic artery and cord. The *vas deferens* is now a firm, white duct, about one-eighth of an inch in diameter, but its caliber is only the size of a fine bristle. The spermatic cord consists of spermatic arteries, veins, nerves, and absorbents, besides its own proper coverings.

1788. **Masturbation.** This evil is also termed *Solitary Indulgence, Self-abuse, Onanism, Self-pollution, Venereal Debauchment, Voluntary Pollution, etc.* The functions of the sexual organs are greatly impaired by the unnatural excitation of the genital organs by friction with the hand.

1789. It is a deplorable fact that this vice is sometimes acquired by boys before they reach their sixth year. In some instances the habit may be attributed to foolish or vicious female servants (particularly foreign nurses), who quiet children when they cry by tickling their sexual organs. These witless persons may not know how dangerous such a practice is to health and morals, or how easily the child is overcome by his

propensities. It is wrong to commit these important trusts to the keeping of those who may easily transform a naturally healthy desire into a precocious morbid sensibility that will eventually ripen into a degrading animal lust.

1790. Older boys seem to regard the practice of this vice, like the vile habit of smoking and chewing tobacco, as a manly accomplishment. It is evident that they act under the impression that the practice of self-pollution indicates their near approach to maturity, and thus vie with each other as to who shall first succeed in awakening his sexual sensibilities sufficiently to give unmistakable evidence of his masculine attributes. One boy may inherit a predisposition to this practice, or his sexual feelings may be awakened at an early age, and his bad example be imitated by many others. In this way a dangerous habit is early acquired, and when the sexual propensities are habitually indulged to the exclusion of the cultivation of higher and nobler pleasures, if not rendered impotent by these abuses, he will transmit the same desires to his offspring, so that the propensity and habit become irresistible—a physical as well as a moral disease.

1791. *Solitary indulgence* is a deplorable and prevalent evil among boys. Parents neglect to talk familiarly with their children upon this subject, and are very often incapable of giving proper advice. The child's confidence must be gained through the manifestation of a tender, personal concern. Diffidence and suspicion on the part of the parent destroys confidence in the child. Parents should divest themselves of all false delicacy, and by their frankness establish an understanding which will result in mutual influence. The physician compassionately meets his patient, is pitiful, tender, and kind. When parents are actuated by the same feelings, they can win the confidence, guard the health, and preserve the morals, of their children.

1792. If the lad be instructed that this sexual enjoyment is a degrading pollution,—a low practice, in which no right-minded boy will indulge,—the gratification will be followed by an instinctive sense of disgust and self-condemnation. He will then realize that restraint is far more manly, and that *self-control* is a higher test of maturity, than the humiliating, degrading indulgence of his passions. Nature requires her own time to nourish the body,

complete the physical frame-work, and bring every member and function to perfect maturity. The muscular exertion required in sports and plays,—the athletic exercises of youth,—tends to develop manly energy, restraint, self-reliance, and heroism. Let boys compete with each other as to who shall excel in these acquirements; let them emulate each other in all that is worthy and just. Such a strife will bring out the highest attributes—those crowning excellencies of character which distinguish and honor MANHOOD.

1793. The habit of solitary indulgence is called self-abuse, even when no semen is lost. Injury is done to the nervous system, since the practice is attended by an observable loss of nervous power. (See page 748.) The desire for such indulgence increases, until the boy becomes, in later years, if not impotent, a victim to sexual intemperance. His love of sensual pleasure is early developed and grows upon him until he becomes a monomaniac on this subject. While “it is never too late to mend,” yet a perfect redemption from this habit, like that of drunkenness, is difficult, and can be achieved only by a determined and persistent effort, which will, many times, require the aid of medicine to allay the unnatural sexual excitement.

1794. **The Indications of this Vice in Young Boys** are irritability, impatience and restlessness, loss of flesh, pallor, and a timid and downcast look. There is loss of memory and the intellect becomes enfeebled. They are depressed in spirits, easily discouraged, and prefer solitude. They do not retain what they learn, the general health fails, and the nervous system shows serious impairment. These symptoms are too significant to deceive the experienced eye, and the short, irritable replies of the boy, and his general quickness of nervous sensibility, is indicative of the loss of nervous power occasioned by this habit.

1795. **Preventive Treatment.** This evil can only be prevented by knowing the habits of children and regulating them in early life. As soon as this practice is acquired, the child needs to be forewarned of its destructive tendency, and told that such a practice results in calamities that will embitter the whole life. Parents hesitate to talk to their boys, because they fear putting impure ideas into innocent minds. Their hopes are strong

that *their* sons will never indulge in so degrading a practice. Parents should warn their sons against the syren vice. It is a false delicacy that restrains them from fulfilling this duty. If they do not attend to their children's interests, who will?

1796. I cannot too earnestly urge upon parents the necessity of forewarning their children against yielding to this pernicious desire. Boys must know that they may be thrown into the company of older lads who practice masturbation and will solicit them to acquire the same vile habit. They must expect to meet with such influences and examples, and be able to withstand the temptation and the persuasions of their associates. They must be taught to resist these propensities and exercise self-control, or they will be carried by the swift current of licentiousness to utter moral and physical ruin.

1797. If the habit has been formed, the child should be required to rise early, take cold baths and exercise, that the blood may be diverted into the muscles, for their growth and reparation. Let the thoughts be directed into proper channels, and the taste for manly sports be cultivated. Let him be encouraged in such amusements as croquet, ball-playing, quoits, walking, hunting, rowing, foot-ball, and all the invigorating exercises of the gymnasium; or let him become interested in the cultivation of flowers, agriculture, or in the care of animals in which he acquires a pecuniary interest, and in these healthful ways the mind will be diverted from sexual objects. If these hygienic means be not sufficient to overcome the morbid sexual excitement, then a skillful physician should be consulted, that the proper remedies may be applied in time to save the child from becoming in later life a victim of spermatorrhœa and impotency.

1798. **Spermatorrhœa** (*Seminal Weakness*), or emission of sperm without copulation, is generally induced by the early habit of masturbation. It is one of the evidences that passion, instead of prudence, has held sway. The ancients believed that the gods were witnesses of secret crimes, and that they bore testimony, notwithstanding all attempts at concealment! Passion may aptly be termed the voice of the body, by which, if we listen, we are enchanted and led astray. Conscience is the voice of the soul, which remonstrates, and if we obey, we shall be guided aright. We cannot reconcile these conflicting voices, and

if we indulge in passion when conscience forbids gratification, the remembrance of the wrong remains forever, and constant fear is an everlasting punishment. There is a real warning in the quaint lines of the Irish poet, Mangan:

“Guard your fire in youth, O Friends,
For manhood’s is but phosphorus;
And small luck or grace attends
Gay boaters down the Bosphorus.”

1799. Man possesses few powers which are more highly prized than those of virility, which is the very essence of manhood. “He is but the counterfeited of a man, who hath not the life of a man.” The sperm is the most important and precious secretion of the animal economy. It is the purest extract of blood; and, according to the energetic expression of Fernel, “*totus homo semen est.*”

1800. **The Semen** is a milky fluid of the consistency of mucus, and when perfectly elaborated, contains no albumen in its composition. It is intermixed with the fluids secreted by the vesiculæ seminales, prostate and Cowper’s glands. Its fertilizing property depends upon the presence of minute bodies, termed *spermatozoa*. (See Fig. 1, page 11.)

The seminal fluid consists of the purest and most vital elements in the human body. It not only assists in maintaining the life of the individual, but communicates the essential, transforming principle which generates another mortal having an imperishable existence. Hence the sperm contains the very quintessence of life, the highest and purest vital elements. Its waste is therefore a wanton expenditure, which robs the blood of its richness and exhausts the body of its animating powers. No wonder that its loss enfeebles the constitution, and results in impotency, premature decay, skin diseases, St. Vitus’s dance, paralysis, epilepsy, consumption, softening of the brain, and insanity. No wonder that conscience and fear become tormenting inquisitors, and that the symptoms are changed into imaginary spectres of stealthily approaching disease.

“There is no future pang
Can deal that justice on the self-condemned
He deals on his own soul.”

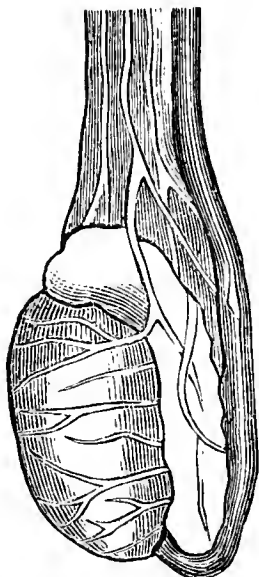
1801. Sperm represents the forces of life, and may be

compared to a spring having vital tension. The watch runs with regularity by means of the tension of its elastic spring. If that power be weakened, the friction and resistance of the wheels cause the watch to stop. So it is with man. Expend the semen, and the vital force is exhausted, for all the functions are obedient to its energy. There is nothing left to propel the delicate machinery of the functions, which, from sheer exhaustion, come to rest. "Whatsoever a man soweth, that shall he also reap." The practice of onanism squanders the vitality and bankrupts the constitution. Indigestion, innutrition, emaciation, shortness of breath, palpitation, nervous debility, are all symptoms of this exhaustion. Subsequently, the yellow skin reveals the bones, the sunken eyes are surrounded by a leaden circle, the vivacious imagination becomes dull, the active mind grows insipid,—in short, the spring, or vital force, having lost its tension, every function wanes in consequence. Excessive lustful enjoyment produces feebleness, and finally terminates in disease and impotency.

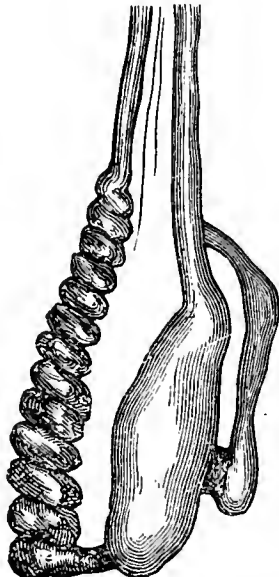
1802. Seminal weakness may be the result of marital excesses. A proper sexual gratification contributes to the health and happiness of both parties. On the other hand, intemperate indulgence not only prevents fruitfulness, but ultimately renders the husband entirely impotent, and undermines and destroys the constitution of the wife. Spermatorrhœa may be induced by spinal irritation, intestinal worms, or piles. It may also result from inherited, as well as acquired, constitutional weakness.

1803. **Nocturnal Emissions.** Involuntary emissions of semen most frequently occur during amorous dreams at night, and are therefore termed *nocturnal emissions*. Although they are at first occasioned by lascivious dreams, attended by erections and pleasurable sensations, yet, as the disease progresses, the erections become less perfect and the losses are only revealed by the depression of spirits experienced the following morning, and by the stiffened and stained spots on the linen. At first, these emissions may occur but once in two or three weeks, unless the patient be excited by company, stimulating food, drinks, or other causes; but at a later stage of the disease they sometimes take place every night. In aggravated cases, the seminal sacs are so weakened that the warmth of the bed, friction of the clothing, reading obscene literature, viewing indecent pictures,

indulging in lewd conversation, or even being in the presence of women, produces a waste of semen,—many times unattended by erections. When there is great weakness, seminal discharges may be induced by lifting heavy weights, pressure upon the genital organs, horseback riding, straining at stool, or even upon urinating, as observed when muscular efforts are made to expel the last drops, which appear thick and viscous. If the urine be allowed to stand for a few hours, the seminal discharge will

Fig. 215.

The Testicle in a healthy condition.

Fig. 216.

A Testicle wasted by Masturbation.

precipitate and form a light-colored deposit at the bottom of the vessel. If the sediment be examined with the microscope, spermatozoa can readily be detected in it. Masturbation not only occasions loss of semen, but frequently the testicles waste away until they become nearly destroyed. Fig. 215 is a good representation of one of these glands in a healthy condition, while Fig. 216 represents one nearly absorbed, as the result of self-abuse. It is an illustration of genuine testicular consumption, and shows the tendencies of venereal excess to waste away the system.

1804. When the testicle is simply congested, there is little or no pain; but when it becomes tender and sensitive, inflammation is indicated. If the inflammation be violent, the tongue becomes furred, the pulse quick and hard, the skin hot, and the bowels

constipated. If it proceed to suppuration, the symptoms are aggravated, and chills are experienced. Much time elapses before an abscess bursts, but when this happens, several openings are formed, which discharge pus and seminal fluid, and are difficult to heal.

1805. *Hydrocele (Dropsy of the Scrotum)* consists of an undue secretion of the fluid which moistens the *tunica vaginalis*, and may arise from an irritation of the testicle (§ 791), produced by masturbation. This subject will be more fully considered hereafter. (See page 817.)

1806. *Varicocele* is a dilatation of the veins of the spermatic cord and scrotum, and is frequently a result of masturbation. It is readily distinguished under the form of a soft, doughy, compressible, knotty, and unequal enlargement of the veins, and a tumid condition of the adjacent parts. One writer, speaking of the enlargement of the spermatic vessicles, describes them as "feeling like a coiled-up bundle of worms." This disease may cause impotency. (See page 820 for a full consideration of varicocele and its treatment.)

1807. *Disease of the Prostate Gland* is frequently caused by solitary indulgence. Venereal excess produces congestion, and the gland is overnourished. The enlargement is called *hypertrophy*. For a full consideration of this affection, see § 1760.

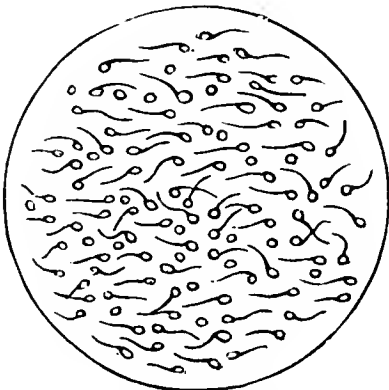
1808. Again, the habit of self-pollution weakens all the structures of the genital organs, and induces seminal waste, which may lead to a morbid diminution in the size of the prostate gland. This condition, which is exactly the opposite of the one above described, is *atrophy*. Any disease that interferes with nutrition or renders the circulation in the prostate gland languid and feeble, will impair that organ. Any practice that drains the blood of its richness tends to develop serofula, ulceration, and abscess,—in short, weakens and destroys the structure of the implicated organ. The habit to which we have alluded *does* impoverish the blood and produce disease in the structures of the prostate gland.

1809. **Impotency** (*Loss of Sexual Power*). Masturbation perverts the excitability of the nervous system and sexual organs and causes debility, which is indicated by the premature discharge of semen during sexual intercourse. These premature

emissions indicate not only partial impotency, but also that the nerve-centers have become morbidly sensitive by the practice of solitary vice or marital excesses. At length the powers of the erectile tissues are diminished, and there is weakness at the root of the penis when erect, thus preventing the act of copulation, or the erection may be slow and not last long enough, on account of a faulty functional condition of the spinal cord. This condition is sometimes associated with a morbid irritability of the urethra, which, being inflamed, may become sufficiently constricted to prevent the emission of semen when the penis is erected. The inflammation may extend downward to the *vesiculæ seminales*, and cause a discharge of thick, ropy, viscous slime. The reader will observe in Fig. 107, that the seminal sac is deep seated; and when the inflammation in the urethra proper has subsided, it may still extend to the seminal sac and cause a discharge of mucus, although unattended by pain. The remedies which are available in acute gonorrhœa are not useful in chronic inflammation of the *vesiculæ seminales*. This prolonged discharge is often mistaken for gleet, and so long as it is treated by injections, copaiba, capsules, and other similar mixtures, it will resist all efforts made for its removal.

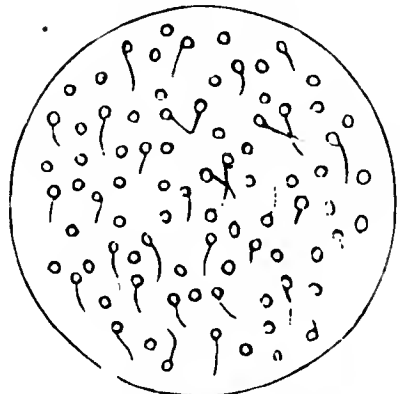
1810. Masturbation perverts and finally destroys the secretory functions of the testes. It sometimes causes chronic inflammation, which may result in obliteration of the minute

Fig. 217.



Microscopic appearance of healthy semen.

Fig. 218.



Microscopic appearance of semen which will not fecundate.

seminal canals, or obstruction of the conveying ducts. The sperm is imperfectly elaborated and totally unfit for procreative

purposes. Sometimes the spermatozoa are entirely absent, and, when present, are very few in number, incomplete in structure, diseased, and deficient in power as well as in organization. Fig. 217 represents the spermatozoa in a healthy condition, and Fig. 218, when they are sickly, deficient, and inanimate. The husband may appear to be healthy, and *his* inability to procreate may be erroneously considered a defect in his wife.

1811. **Symptoms of Spermatorrhœa.** The indications of abuse of the sexual organs are loss of nervous energy, dullness of the mental faculties, and delight in obscene stories. The expression of the face becomes coarse, and the movements slow; the eye is sunken, the face bloated and pale, and the disposition is fretful and irritable; the appetite is capricious, the throat irritated, and the patient makes frequent attempts to clear it, in order to speak distinctly. There are pains in the chest, wakefulness, and during the night lascivious thoughts and desires. The relish for play or labor is gone, and a growing distaste for business is apparent; there is a determination of blood to the head, headache, noises and roaring sounds in the ears, the eyes are blood-shot and watery, the patient imagines bright spots or flashes passing before them, and there may be partial blindness. There is increasing stolidity of expression, the eye is without sparkle, and the face becomes blotched and animal-like in its expression. The victim is careless of his personal appearance, not scrupulously neat, and not unfrequently a rank odor exhales from the body.

1812. There are troublesome sensations, as of itching and crawling, in and about the scrotum. Subsequently, there is obstinate constipation, and all the symptoms of dyspepsia follow. Gradually the pallor deepens, and the patient becomes emaciated. There is shortness of breath, palpitation after even moderate exercise, trembling of the knees, and eruptions on the skin. There may also be cough, hoarseness, stitch in the side, and loss of voice. The sleep is not refreshing, the dreams are lascivious, and the involuntary emissions of semen become more frequent. The weakness increasing, the sufferer experiences a weakness in his legs and staggers like a drunken man, his hands tremble and he stammers.

1813. The victim is unable to concentrate his thoughts, cannot remember what he reads, and is mentally indolent. He

begins to be suspicious of his friends, has less confidence in others, and desires to be alone, is despondent and has suicidal thoughts. He has pain in the back, does not like to walk, and is inclined to lie down. The semen is prematurely discharged upon attempting coition, and if there be offspring, it is apt to be feeble or subject to scrofula, consumption, or convulsions. The genital organs diminish in size, lose their energy, and the glans of the penis becomes cold, flaccid, and tender. There is a frequent desire to urinate, chronic irritation in the neck of the bladder, and pain in the spermatic cord and testicle. The microscope shows that semen involuntarily discharged may be devoid of spermatozoa, or if present, they are defective, the filaments having no head or an imperfect one, and being without a tail. The urine is loaded with mucus or bears up a filmy, membranous, transparent matter, or it may be covered with a thin fluid having an oily appearance. Again, it may hold substances in solution, which are deposited in crystals or incrust the urine, or it may precipitate a material having the appearance of brick-dust, and sometimes semen tinged with blood. The dyspeptic symptoms are followed by diarrhœa. The limbs are cramped and rigid, the feet bloated, and the patient becomes melancholy and relinquishes all hope of recovery. As the disease progresses, the patient lacks firmness and is absent-minded.

1814. When the erections are imperfect and the semen is prematurely discharged, or when a lengthy coition is required before the sperm can be ejected, it is evident that the patient is rapidly becoming impotent; the virile powers are vanishing and manhood is surrendering his sway to a merciless foe. I frequently witness this condition in men, even at the age of thirty-five, when the summit of vigor and strength should only have been reached. How often am I solicited to restore these lost hopes and powers! To what tales of ignorance and recklessness, or submission and remorse, do I repeatedly listen from these unfortunate sufferers! In patients of this class, sexual intercourse prevents spontaneous emissions, but it does not remove the functional and organic derangement of the nerve-centers; hence, at a time when the victims of this disease should be in the prime of life, they are impotent, and epilepsy, softening of the brain, apoplexy, paralysis, or insanity, frequently results.

1815. A peculiar form of impotency is associated with certain abnormal nutritive changes, which give rise to a lymphatic condition of the system. Not that the temperament in all these cases is originally lymphatic, but the system degenerates in consequence of nutritive perversion. With the loss of sexual ardor, there is also apathy of mind, loss of manliness, and the victim becomes cold, dispassionate, and treacherous, devoid of any admiration or love for the opposite sex. He acquires rotundity of person, the face is fat, smooth, often beardless, and the voice is feminine.

1816. The victims of this disease represent two distinct classes, viz: (1) those who are fearfully tormented by the consciousness that they are losing their virile powers, and become irritable, jealous, and often desperate; and (2) those who are completely indifferent to this deprivation. In both classes, impotency is the result of either self-abuse or sexual excess.

(1.) Patients of the former class are readily restored to health by proper treatment, for they are willing to make an effort for the recovery of their manly powers. There is not complete loss of sexual desire, yet their disappointment is so great that they may entertain suicidal thoughts. They are moody, fickle, discontented, excitable, and remarkably impulsive. With proper treatment, they regain tone of body, vigor of mind, an increase of sexual desire, and become more attentive to business affairs, and less indifferent to the gentler sex. With the restoration of the general health and the sexual functions, remarkable constitutional changes occur. It is often the case that their intimate friends hardly recognize them by looks or acts.

(2.) It is equally true that those who are wholly indifferent to the loss of virile powers, uninterested in the evidences of their manhood, are sometimes incurable. In fact, it is useless to treat the latter class, because they will neither co-operate with the physician, nor persist in the treatment necessary to effect a radical constitutional change.

Although I have minutely described the symptoms common to the different stages of spermatorrhœa and impotency, yet no one suffering from these diseases will, at any stage, experience more than a small part of those enumerated.

1817. **Moral Considerations.** Masturbation is a

habit that tyrannizes over the mind, perverts the imagination, and forces upon the victim venereal desires, even while he is forming the strongest resolutions to reform. It constrains into its service the higher faculties, such as friendship, confidence, love, reason, and imagination, to make its ideal graceful and beautiful. The fancy creates an attractive partner, possessed of girlish beauty—a perfect type of goodness, blended with sexuality, and whom he worships with all the ardor of passion. Around this *beau ideal* all his affections are clustered; to her the purest of his blood is offered in sacrifice, and it is no wonder that female associates seem tame and unattractive when such an imaginary and consummate divinity is courted. In the sensual delirium is conceived an elysium of carnal bliss, where half-nude nymphs display their charms, and invite to sensual enjoyments. Thus we see how this habit makes the spiritual faculties subservient to morbid passion, and by what means elevating influences are prostituted to vulgar and base-born creations.

1818. We can only partially delineate the terrible effects resulting from the abuse of the sexual organs. The symptoms are multitudinous, but as we have before stated, no two persons are similarly influenced by this disease. The symptoms will vary according to the severity of the affection, the age of the patient, and his constitutional peculiarities. The presence of only a few of the symptoms which we have enumerated is evidence of abnormal weakness, and demands treatment.

1819. The animal propensities are good servants, but cruel masters. It has been said that they do and undo every thing. It is said that pilots fear the halcyon seas, and prefer wind at the risk of shipwreck. So men court the passions—the motive powers of being—though they often wreck the constitution. “Moderation is like Temperance; we would wish to eat more, but are afraid of injuring our health.”

1820. Montaigne says: “We must see and get acquainted with our sins if we expect to correct them.” Virtue presupposes trials just as much as victory implies warfare. The triumph of virtue is to defeat morbid or excessive passion, for virtue is only realized when it is a conquering force. Innocence is passive, but virtue is an active, volitive quality, purified in the fiery furnace of temptation. As men have in all ages been

influenced by the same passions, so temptation has ever found its victims. It is an obligation that one owes to himself to overcome every evil passion or weakness to which he is subject, and the discharge of this personal duty will require great moral courage.

1821. Our Saviour invited all erring mortals to enter upon a higher life when He said, "Come unto Me, all ye that labor and are heavy laden, and I will give you rest." The invitation is accompanied with a promise. To all who are weary of excess and bowed down by passion, rest and restoration are promised.

1822. Just as there is no spiritual restoration without obeying the Saviour, so there can be no physical restoration unless we fulfill nature's imposed conditions. There can be no salvation unless sin be discarded, and so there can be no redemption from the bad effects of a practice, so long as it is continued. It is no easy task to master a despotic passion. Appetite is often stronger than the will. The treatment must begin by moral reformation. Every manly impulse and all the higher qualities of the patient's nature must be enlisted in the struggle for virtue and health.

If the passions be restrained, then the capital of health increases, for the saving of the vital secretions is equal to compound interest. It illustrates the truth of the Latin proverb: "*No gain is so certain as that which proceeds from the economical use of what you have!*" The patient actually acquires confidence and manly courage by the retention of the seminal fluid, which directly increases his virile powers.

1823. **Hygienic Advice to Patients.** Daily physical exercise and regular habits must be established. It is important that the mind, as well as the physical powers, be directed into active and wholesome channels. There must be restraint and discipline. It is useless to begin medical treatment while the patient continues to read exciting, amorous stories and obscene books, which are suggestive of lewd thoughts. Something practical ought to occupy the thoughts and engage the hands.

Regular and vigorous physical exercise is necessary to assist the circulation of the blood and compel its determination in the

minute and extreme parts of the vascular system. When the blood is thus directed, nutrition is more vigorous and the activity of all the functions is augmented.

1824. Not only should there be regularity in eating, but sound discretion should be exercised in selecting a plain, wholesome diet, consisting of such articles of food as favor a daily and free evacuation of the bowels. (See article on Constipation.) Avoid the use of those articles of food which produce excessive acidity of the stomach. Hearty or late suppers are not allowable. The patient should use no alcoholic beverages, and abstain from such stimulants as tea, coffee, beer, wine, and tobacco. I cannot even recommend their *moderate* use, for total abstinence is the better plan. If a speedy cure is desired, drink only cold water.

1825. The patient should sleep in a well-ventilated room, on a hard bed, and have only sufficient covering for warmth and comfort. He should not lie upon the back, because in this position nightly emissions are more likely to occur. The patient should go to bed when he feels sleepy, and not resist the inclination until wakefulness is induced.

1826. He should rise early in the morning and immediately take a cold hand-bath. For this purpose a quart or two of water and a common towel only are required. After bathing, rub the surface of the body with the dry hand or a crash towel, and continue the friction until the skin is red and a reaction is established. Do not excuse yourself from following these hygienic suggestions. A refreshing bath changes the morbid sensibilities to a more healthful state by the reaction of the nervous system.

1827. It is beneficial to apply a towel saturated with cold water to the genital organs fifteen minutes before leaving the bed. Douching, or showering, the genital organs with cold water once or twice a day will also be beneficial. It should not be practiced, however, just before going to bed. It is well to bathe the head in cold water, and this can be done much better if the hair be kept closely cut.

1828. Horseback riding, climbing, and all exercises that rub, chafe, or excite, the genital organs should be avoided. Even the clothing should be loose, so that walking will not produce friction or cause any excitement of these organs. The calls of nature

should receive prompt attention, and the urine be voided at any time (especially during the night) when there is an inclination. If there be irritation of the bladder and lower bowels, the patient will receive decided benefit from the daily use of an injection of cold water into the bowels. From a half pint to a pint of cold water may be used at one time, and the injection should be retained for a few minutes before going to bed. The bowels will thus be relieved, the heat and irritation subdued, and the liability to seminal emissions lessened.

1829. Patients should not allow their thoughts to dwell upon their ailments, for they are apt to become moody, self-deceived, and even insane upon this subject. They become suspicious, skeptical, and believe that they are victims of imposture. When they lose self-reliance, their faith and trust in others begins to waver, especially if their health does not improve so rapidly as they had anticipated. As much depends upon the faithful observance of the hygienic rules as upon the constant and proper use of medicines. The rapidity of recovery depends upon the constitutional energies and the vigor of the vital resources. If the blood be greatly impoverished, or the nervous system much impaired, recovery will be necessarily slow. Time, patience, and perseverance, are just as essential to a recovery from the effects of these abuses as the best medical treatment that can be employed.

1830. **The Medical Treatment of Spermatorrhœa and Impotency.** As indicated in the introduction to Part IV of this volume (§676), I have omitted to advise any special course of medical treatment for those obscure and complicated chronic diseases, the successful management of which demands the greatest professional skill. Concerning the medical treatment of spermatorrhœa and impotency, I shall adhere to the same policy, believing that in this manner the best interests of the patient will be subserved. No other class of diseases requires so many modifications of treatment, to suit the peculiarities of individual cases, because no other is attended by so many complications and morbid functional and structural changes. Every complication must be considered, and great judgment exercised in the selection of remedies. As this selection must depend upon the peculiarities of the case involved, it

is impossible to impart to the non-professional readers sufficient medical knowledge to enable them to choose the appropriate remedies for these intricate disorders. Hence it would be useless to specify the various medicines which I employ in treating them. It would only lead to many fruitless experiments, which might result in great harm to the afflicted.

1831. The invalid should restrict his attention to hygiene, and learn that patient endurance and heroic perseverance are necessary, even when taking the most efficient medicines. His entire system has gradually become deranged, and corrective medicines must be *chronic* in their operations; in other words, they must act insensibly, slowly and progressively. Some of the symptoms of sexual weakness will, under proper hygienic and medical treatment, generally begin to disappear within a month. When, however, the nervous system is very much impaired, a longer time will elapse before the restorative effects of treatment will be observed. Neither the physician nor the patient should expect that a broken-down constitution can be immediately repaired. The day of miracles is passed. The most rational method of treating the sick promises nothing supernatural,—nothing which is not in accordance with science.

1832. Years ago, I resolved to pay particular attention to the investigation and treatment of these diseases, which are not only alarmingly prevalent, but sadly neglected and mistreated by the general practitioner of medicine. Accordingly, I have tested and developed a series of vegetable remedies, which not only arrest all forms of seminal discharges, but restore the wasted organs and their lost energy. Having successfully treated *over twenty thousand cases*, I can safely say of my remedies that they are unfailing in their remedial effects. I now prescribe them with the same confidence in their efficacy that I would give bread and beef to a starving man to satisfy his hunger. The uniform success which has attended the employment of these remedies has led me to rely upon them with implicit faith. By their persistent use, spermatorrhœa, partial and even *complete* impotency, can be as easily cured as other chronic, or lingering diseases. For these reasons, I particularly solicit those cases which have heretofore been regarded as incurable. The patient is subjected to no surgical operation, and he can safely and accurately follow

the directions given, while the treatment does not interfere with any ordinary occupation in which he may be engaged. These delicate diseases should not be intrusted to physicians who advertise under fictitious names, or to those of ordinary qualifications. The general practitioner may be thoroughly read in these diseases, but he cannot acquire the skill of a specialist who annually treats thousands of cases, while the former seldom, if ever, has occasion to prescribe for them.

1833. Occasionally persons solicit me to undertake the cure of these ailments, and in case of failure, receive no compensation. They write: "If you will *warrant* that your prescriptions will result in a *perfect restoration to health*, we will gladly pay the fees that you ask." The absurdity of such a request is apparent, and therefore I answer: "I cannot *warrant* that you will live even for the next twenty-four hours. I do not bet, play for stakes, or wager my skill for money. Personal responsibility cannot be shifted or evaded, and life and health, with all their momentous considerations, are necessarily individual affairs. Therefore, a proposal to make the conditions of health a subject of speculation is a challenge to gamble." The patient may not comply with the specified conditions, and the physician's success depends upon a faithful application of the prescribed treatment. For these reasons only a quack will be a party to any such transaction. Ours is not a trading, hazardously speculative profession. The physician should not take advantage of the fears of his patients, but serve them with the best of his skill and in return be suitably remunerated.

1834. **Evidences of the Curability of Spermatorrhœa and Impotency.** Many individuals afflicted with spermatorrhœa and impotency (particularly those who have been swindled by some of the many charlatans who are to be found in nearly every city) are incredulous, and doubt my ability to cure these maladies. Others are skeptical, because their physician, who may be a very skillful general practitioner, but who has had very little or no experience in treating these delicate maladies, has failed to relieve them, and, perhaps, tells them the disease is incurable.

I therefore beg the indulgence of my readers for here offering some indisputable evidence of the extraordinary success which I

have achieved by my peculiar methods of treating these affections.

This evidence is introduced for the encouragement of an unfortunate class of invalids, for many of whom existence has ceased to possess any charms. The grateful manifestations which I have received from this class of sufferers have afforded me one of the greatest pleasures of my life, and have alone been a rich remuneration for the diligent study and arduous labors devoted to the investigation of these diseases and the perfection of my peculiar methods of treating them.

1835. In introducing the following extracts from my extensive files of letters, the names of the writers will be omitted, as I regard all such correspondence, as well as facts communicated to me in personal consultations, as *sacredly confidential*. To compensate for the omission of signatures, I shall prefix my affidavit of their genuineness.

Lack of space and fear of wearying the reader, prevents me from introducing more than a few extracts; but these are only fair samples of *thousands* that have been received. Those given, present cases in almost every stage of treatment, some soon after commencing, others further advanced, and still others after being cured. If I could devote the space, and had the time to select them, I could insert an almost unlimited number of those received from patients who have been perfectly cured; but I think the reader will be more interested in expressions coming from patients in all stages of treatment, as they are daily received by me. Therefore, without regard for literary excellence, I append a number chosen miscellaniously, and given *verbatim*. They express the sentiments of persons in all stations of life, and illustrate the views and feelings generally entertained by those whom I have been called upon to treat.

1836. The following extracts are spontaneous acknowledgments, and are, therefore, more valuable and truthful than if obtained by solicitation,—a practice contrary to my sense of propriety, and hence one in which I never indulge. Although oftentimes less expressive of satisfaction and gratitude than if the communication were presented in full, yet only sufficient space can be spared for a brief quotation from each letter.

THE AUTHOR'S AFFIDAVIT.

STATE OF NEW YORK, }
COUNTY OF ERIE. } ss.

R. V. PIERCE, of the City of Buffalo, State and County aforesaid, being duly and solemnly sworn, says: That the extracts of letters hereunto appended, and from which the signatures are omitted, are genuine quotations from letters received by him, and that the said letters are now on file in his office; and furthermore, that the said testimonials were written without his (the deponent's) invitation or solicitation, and are but fair samples of numerous others on file in his office, and of those daily received from all parts of the country.

R. V. PIERCE.

Sworn before me, this 16th day of March, A. D. 1875.

WM. H. JENKINS,

[COPY.]

Notary Public in and for Erie County, N. Y.

WORDS FROM OUR PATIENTS.

Case I. *Spermatorrhœa in a most aggravated form.* A gentleman writing from Clark County, Ohio, says: "Although it required some longer time than I expected, nevertheless I am thankful that I am feeling so well at present. But a short time ago, my case was (to me) hopeless. That last medicine worked like a charm, so much so, that I don't see any necessity for me continuing the treatment any longer."

Case II. A gentleman in Saline County, Missouri, writes: "I have taken the last of the medicine you sent me for the cure of spermatorrhœa and feel satisfied that it has entirely cured me. I have had no emissions for over a month, and no longer have the desire to masturbate."

Case III. A gentleman residing in Delaware County, Pennsylvania, writes: "I began taking your medicine on the first of last December, 1874, and since then have had a second lot. * * * I think, with the blessing of God, I can get along without any more. I feel perfectly well at present—not a pain, ache or anything else to tell of sickness. I am stouter by fourteen pounds than I was two months ago. I have no more emissions."

Case IV. A gentleman writes from Juniata County, Pennsylvania: "I don't think I have any necessity to order any more medicine. I don't have any night emissions since I commenced to use the medicine of the second month's trial. I feel to return my sincerest thanks to you for the good which you have done me, and the kind attention which you gave me. I hope you may live long, to do the needy sufferers good."

Case V. A gentleman under treatment for spermatorrhœa writes from Labette County, Kansas: "I am happy to say that I feel a remarkable change in my entire system. Nocturnal emissions have almost entirely stopped, erotic dreams seldom troubling me. I have gained in

flesh and healthy appearance, and feel stronger, healthier, and more independent—*more a man every way than ever before.*”

Case VI. The following expressive sentence is extracted from a letter which I received from a gentleman residing in Woodford County, Illinois. He was terribly afflicted with spermatorrhœa, resulting in partial impotency, and was treated only five months by the Faculty of the World's Dispensary: “*I am well, married and happy.*”

Case VII. *Spermatorrhœa.* A gentleman writing from Scott County, Virginia, says: “With great pleasure and thankfulness of heart, I inform you that your medicine has cured me, I think, sound and well. I tried other doctors, and they failed, and my case became very serious.”

Case VIII. A gentleman residing in New York City writes: “My store of medicine is about three-fourths gone, and I think it advisable to send for more. It is working splendidly. I have not had one emission this month, and I feel twenty per cent. better.”

Case IX. *Spermatorrhœa and Impotency.* A gentleman residing on Staten Island, N. Y., writes: “I am happy to say that your medicine has perfectly cured me. I am well and strong.”

Case X. *Bad case of Spermatorrhœa.* A gentleman writes from Hillsdale County, Michigan: “Your remedies have improved my health so much that my friends wonder what I am doing for myself.”

Case XI. *Bad case of Spermatorrhœa with partial Impotency.* A gentleman writes from Lorain County, Ohio: “I feel better than ever I did in my life. Back is not so weak, and I think I am cured.”

Case XII. *Case of partial Impotency resulting from Masturbation.* A gentleman residing in Republic County, Kansas, writes: “I improved rapidly from the time I commenced taking your medicines. I consider myself well. On — I married the lady whom I have long loved. *We are happy, of course.* I am a thousand times obliged to you for what you have done, and have confidence in your ability to cure whatever you undertake.”

Case XIII. *Bad case of Spermatorrhœa.* A gentleman residing in Mercer County, Pennsylvania, writes: “The last lot of medicines sent by you was duly received and taken according to directions. When done I found myself well, but deferred writing you until I should observe whether the cure was permanent or not. I am getting strong and robust, and think myself cured, thanks to your skill.”

Case XIV. *Case of Impotency.* A gentleman writes from Caledonia County, Vermont: “My health is very much improved in every respect. Have not been so well for ten years. I think my vital powers are fully restored. Have worked every day since I commenced taking the medicine.”

Case XV. *Case of Spermatorrhœa.* A gentleman residing in Miami County, Ohio, who has been under treatment only one month, writes: “I have taken your medicine, as directed, and feel like a new man. I have no desire to masturbate.”

Case XVI. *A very bad case of Spermatorrhœa.* A gentleman residing in Brooklyn, New York, who has been under treatment five months for spermatorrhœa in its worst form, writes: "I have not had any loss of semen since the last time I mentioned in my foregoing report."

Case XVII. *Spermatorrhœa.* A gentleman who has had one month's treatment, writes from Columbia County, Wisconsin: "I have had one emission since I began taking your medicine. I have a good appetite and sleep well, but to be sure of my cure, I will send to you for one more month's treatment."

Case XVIII. *A very bad case of Spermatorrhœa with Impotency.* A gentleman who had been under our treatment six months, and whose case was one of the worst we have ever treated, writes: "I consider myself cured. Have had no indications of the disease since your treatment."

Case XIX. *A case of Spermatorrhœa of several years' standing.* A gentleman residing in Kosciusko County, Indiana, after having been under treatment three months, writes: "It is with pleasure that I state to you that I am improving right along—gaining both in flesh and strength. The involuntary emissions, I think, have entirely ceased since I last wrote to you."

Case XX. *A case of Spermatorrhœa.* A gentleman writes from Napa County, California: "I don't think I will need another month's treatment, as even the first medicine nearly cured me."

Case XXI. *A case of Spermatorrhœa.* A gentleman residing in Cincinnati, writes: "I am getting along finely. I feel as well to-day as I ever felt."

Case XXII. *Spermatorrhœa and Impotency.* A gentleman, after having been treated by me for three months, writes from Essex County, Massachusetts: "I have used medicines you sent according to directions for the cure of spermatorrhœa, and feel satisfied they have had the desired effect. In short, I feel myself a man again."

Case XXIII. *Spermatorrhœa.* From Des Moines County, Iowa, come the cheering words: "I deem it my duty to acknowledge to you the valuable service which you have performed for me. The last medicine you sent me for the cure of seminal weakness, caused by youthful indiscretion, was sent over eight months ago. I now feel that I am cured of that disorder, and am very thankful to you."

Case XXIV. *Spermatorrhœa.* A young man residing in Dickinson County, Kansas, writes: "I have to state that I am a great deal better, in fact I consider myself cured. The emissions have entirely stopped, and I have no desire to masturbate any more."

Case XXV. *Spermatorrhœa and partial Impotency.* A gentleman residing in Jennings County, Indiana, after taking my treatment for four months, writes: "Through your aid I am once more restored to perfect health. I no longer have the desire to masturbate. I feel like a new man in every respect."

Case XXVI. *Impotency,—the result of Spermatorrhœa.* The following is from a gentleman residing in Providence County, Rhode Island, who had long been a sufferer from impotency, and was perfectly restored, in six months, by my peculiar method of treatment: "It is with pleasure that I make the following report to you. I feel that the cure is complete and permanent. I cannot thank you enough for having been the means of saving my life, for I know that I could not have lived a great while had it not been for your treatment and advice. I was in a most pitiable condition when I applied to you. I can now associate with my fellow-men and feel that I am their equal. I thank God that you have been the means of restoring that health and strength to me which I so foolishly and wantonly wasted."

1837. Did the interest of my readers demand it, I could add to the preceding list an almost endless number of extracts from letters written by grateful patients, expressing their heart-felt thanks for having been cured of spermatorrhœa and impotency by my treatment. But I trust that enough have been given to satisfy the most skeptical and disheartened sufferer from these diseases that his case is yet remediable.

1838. In the whole list of diseases, there is not one that is more neglected and less understood by practitioners than spermatorrhœa. It has, therefore, furnished a lucrative field for quackery.

I am daily consulted by persons suffering from spermatorrhœa and impotency who have been victimized by ignorant charlatans. Some of these swindlers head their advertisements by such captivating sentiments as "A Retired Physician," "A Philanthropic Clergyman desiring to rescue the Unfortunate," "Lost Manhood Restored," "Avoid Quacks," "Healing Pool," or perhaps they appear under the more pretentious title of "Howard Association," or "New York Medical University," compared with either of which no greater humbug exists. Others advertise under such fictitious names as "Dr. La Croix," "Dr. Lockrow," or "Old Dr. Thompson," expressing their willingness to treat this class of diseases on the most reasonable terms.

I frequently receive letters making inquiries concerning the reputation or professional standing of a quack who resides in this city and makes a practice of imposing upon unfortunate sufferers. He assumes the title of "doctor" by virtue of a diploma obtained from a so-called medical university of Philadelphia, the charter of which has been revoked by the legislature

of Pennsylvania, because the faculty of that institution were found guilty of *selling* diplomas to such charlatans. This pretender issues a pamphlet, wherein he claims to have made great discoveries in physiology and medicine, intimates that he is the author of "large works" which "may be found in all the principal bookstores," and makes other extravagant pretensions. The fact is, that this little pamphlet is the extent of his authorship, and nearly every sentence in it is so constructed as to betray an utter disregard for grammar. We therefore infer that he has neglected to acquire even the rudiments of a common-school education, and if we judged of his medical qualifications by his lying pretensions, we should have to stigmatize him as a *genuine humbug!* These quacks claim that they can and will cure those oftentimes formidable diseases resulting from self-abuse and excessive venery, on receipt of surprisingly small fees. This fact alone should arouse the victim's suspicions, for physicians of skill and eminence do not proffer their services for mere pittance. (See ¶ 1930.) The proper treatment of these diseases require not only experience and skill, but the use of expensive remedies.

1839. I have considered the subjects of Spermatorrhœa and Impotency at some length, on account of their prevalence and the very unsatisfactory manner in which they are treated by general practitioners. In France and Germany, where the management of these diseases has not to such an extent been given over to quacks, but engages the attention of many scientific physicians, great advancement has been made in their treatment. Specialists in those countries have recently discovered and introduced to the profession many valuable remedies for these affections. Many of the medicines employed at the World's Dispensary, in the treatment of spermatorrhœa and impotency, are imported directly from Europe, and are unknown to the majority of American physicians, who manifest little interest in discoveries relating to these diseases.

1840. Many practitioners assume to treat these most delicate and intricate diseases, but being inexperienced their efforts result in failure. By ordinary treatment, these affections prove very obstinate, the physician becomes tired of his patient, and, wishing to be rid of him, recommends marriage as an ultimate remedy.

If the patient follow this advice, domestic unhappiness, and perhaps divorce, are the results. A man suffering from spermatorrhœa, impotency, nervous debility, etc., should not marry until he has regained his health. Let him fully recuperate his energy and strength, that his children may not inherit any morbid sexual tendencies! The issue of his love may then be pure, sweet, and promising, and his home be made an earthly paradise. It has been said that the greatness of the human soul is shown by keeping within the bounds of moderation. It is a French proverb, that "the happiness of the human race in this world does not consist in our being devoid of *passions*, but in our learning to command them."

PHIMOSIS. (CONTRACTED FORESKIN.)

1841. An unnatural contraction of the prepuce, or foreskin (see Fig. 107, page 218), in front of the orifice of the male urethra, is a very common affection. The foreskin cannot be drawn back so as to uncover the *glans penis* (see Fig. 107). In some cases the opening through the foreskin is so small as to diminish the size of the stream of urine flowing through it. The deformity sometimes exists at birth. In other cases it is due to inflammation, caused by injuries or uncleanness. It often results from venereal diseases, and not unfrequently it is a sequence of masturbation. In some cases the foreskin is greatly elongated, while in others it is of normal length, yet so contracted at its orifice that it cannot be pulled backward sufficiently to expose the glans. The affection gives rise to much inconvenience and suffering. Large quantities of whitish matter collects under the foreskin, inflammation is induced, and the foreskin adheres to the glans. This complicated condition can only be relieved by a careful dissection of the parts. The affection produces intense irritation throughout the whole genito-urinary system. Stricture of the urethra, inflammation of the bladder, and disease of the ureters and kidneys, are common results of phimosis. Ulceration of the contracted parts is not uncommon, and in rare instances cancers are produced, involving the prepuce and glans, and requiring amputation of the penis to save the victim's life. Mr. Hey, a very distinguished English surgeon, found phimosis present in nine cases out of twelve in which he

performed amputation of the penis for the removal of cancerous tumors.

1842. **Treatment.** No course of medical treatment can effect a cure of either congenital or acquired phimosis. The only remedy is circumcision. When performed by a skillful surgeon, and the wound closed by a few stitches, uniting the skin and the mucous lining of the foreskin, the parts will heal in a few days, and the deformity will be entirely corrected. In cases where the foreskin is not abnormally long, I have slit it and united the skin and mucous membrane. When the deformity exists at birth, it should be remedied without delay. In the very large number of operations for this affection, performed at the World's Dispensary, none have been followed by other than the most satisfactory results. I employ either local or general anæsthesia (see page 822), to render the patient insensible to the pain.

DROPSY OF THE SCROTUM. (HYDROCELE.)

1843. This malady consists of a collection of water in the *tunica vaginalis*, or membranous sac which contains the testicle. It may affect either one or both sides. In health, the sac-like covering, or investing membrane, of the testicle secretes a limpid fluid which lubricates its inner surface. When secreted in excess it accumulates and constitutes *hydrocele*.

1844. The tumor commences at the bottom of the scrotum and grows very gradually, while hernia, with which it is sometimes confounded, progresses from above downwards and makes its appearance suddenly. At first, the tumor is soft and the testicle may readily be distinguished; but as it increases in size it becomes firm and incompressible, and the testicle can scarcely be distinguished from the tumor. The tumor is generally pyriform, and its growth is attended by little or no pain. The swelling is so translucent, that by placing a lighted candle behind it we may see the light through the affected parts. There are cases, however, in which the skin becomes so thickened, and the accumulated liquid so opaque, as to obstruct the passage of the rays of light. -

The affection is sometimes associated with chronic enlargement of the testicle, and it is then termed *hydro-sarcocoele*. In

the latter case the tumor is opaque. In all forms of the disease the skin usually retains its normal color.

1845. Sometimes the water accumulates in the investing membrane of the spermatic cord, and is then called *encysted hydrocele of the cord*. This form of the disease occurs more frequently in children than in adults. This variety of the disease is very often confounded with hernia (rupture) by ignorant or careless surgeons. I was recently consulted by an aged gentleman, whose disease a distinguished surgeon had pronounced *double hernia*. On examining the enlargement, I found the disease to be dropsy of the spermatic cord, complicated with sarcocele. Through an aspirator needle, I drew off four ounces of fluid from one side, and six from the other. In due time I shall cure my patient.

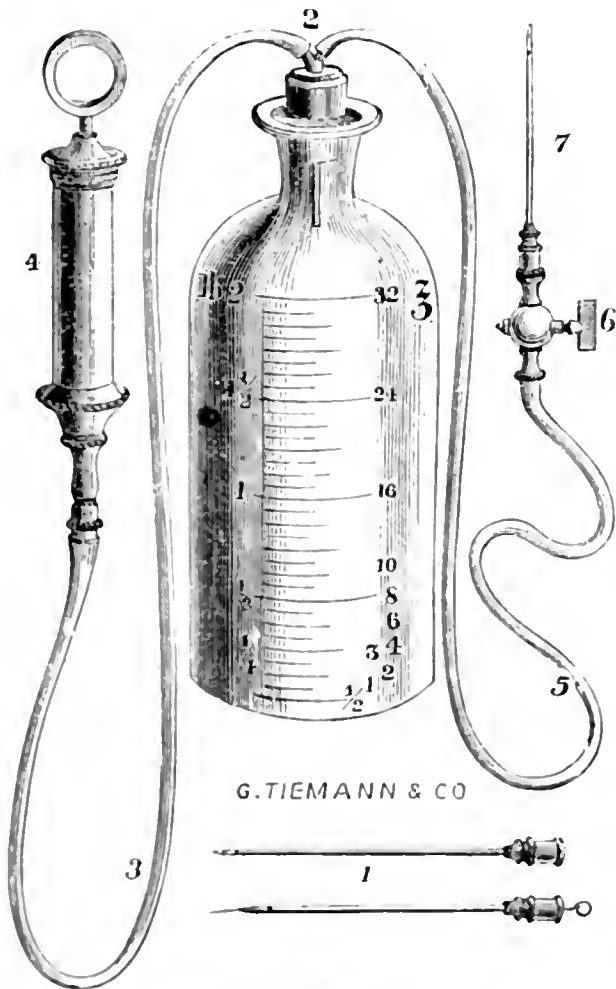
1846. **Causes.** Injuries from blows or bruises are among the most common causes of this disease. It may also result from inflammation of the testicle or from excited action in those parts. It has been known to result from stricture of the urethra, or water-passage, and also from local irritation along that channel.

1847. **Diagnosis.** The tumor may generally be easily recognized by the following peculiarities: The growth of the tumor from below upwards, its softness and fluctuation when touched, and its translucency and lightness as compared with a solid tumor. Its smoothness, the absence of pain and the lack of impulse in it, caused by coughing (which is generally perceptible in rupture), are also distinguishing features of this affection. Some of these peculiarities, however, are not always present; as, for instance, the freedom from pain. In some cases, very severe pain is experienced.

1848. **The Quantity of Water.** Sometimes the quantity of liquid contained in the scrotum is enormous. Gibbon, the historian, is said to have had six quarts of water removed from his scrotum at one tapping. I have drawn four pints at one operation, and three pints not unfrequently.

1849. **Treatment.** In children, the disease sometimes disappears spontaneously, but in adults such an occurrence is rare. Medical treatment, although sometimes employed by physicians, has not in my practice been productive of any benefit. The only treatment which promises permanent relief

consists in tapping and drawing off the accumulated fluid. In many cases the water will re-accumulate, unless some stimulating liquid be injected into the sac after the water is drawn off. I usually inject a small quantity of the tincture of iodine, and let it remain a few minutes, at the same time compressing the parts to bring it in contact with the whole inner surface of the sac. The water may be drawn off by means of an ordinary trocar

Fig. 219.

The Aspirator.

and canula or through a small trocar canula, or hollow needle, attached to an aspirator pump. (See Fig. 219.) I now employ the latter instrument most frequently in tapping all kinds of dropsical effusions. The needles are more delicate than a trocar and canula. By the aid of an air pump, with which it is connected by a rubber tube, an amount of suction is applied which promotes the flow of liquid through the needle. By the use of aspirator needles, the surgeon can safely tap the chest, abdomen, and other cavities, and the operations are attended

with very little pain. Abscesses of the liver can also be reached, and the accumulated liquid drawn off through these needles. Ovarian, and other encysted tumors may be explored, and their contents drawn off, by the use of this recently-invented instrument. The facility with which this instrument may be used,

the freedom from pain, and the perfect safety attending its use, render it superior to the instruments usually employed by surgeons. Some surgeons resort to the use of setons for the cure of hernia, but these are extremely painful, and I consider their employment little less than barbarous, when we have more perfect and painless methods of cure.

VARICOCELE. (ENLARGED SPERMATIC VEINS.)

1850. This affection is also designated by the terms *circocoele* and *spermatocele*. It consists of an enlargement, or varicose condition, of the veins of the scrotum or the spermatic cord. It affects the left side more frequently than the right. This is due to the fact that the spermatic veins of that side are longer, more dependent and tortuous, and, consequently, support a greater column of blood than the other side. The enlarged veins feel like a bundle of earth-worms. The knotty and tortuous vessels sometimes form quite a large tumor, which is often sensitive to the touch, and causes a feeling of weight in the scrotum and loins, and sometimes produces a sensation of numbness in the thighs.

1851. **Causes.** Constipation, long continued and fatiguing exercise in the upright position, corpulence, the wearing of tight belts or trusses, tumors pressing upon the spermatic veins, and whatever obstructs or retards the free flow of blood upward through the spermatic veins, favor the development of varicocele. The practice of masturbation, or self-abuse, is also a predisposing cause of this disease. It operates by impairing the tonicity of the veins, thus weakening their capacity for transmitting the blood.

1852. **Treatment.** Medical treatment is of little benefit in this affection. If the disease be but slightly developed, the wearing of a suspensory bandage will afford relief by the support which it furnishes. The increased weight of the parts must be supported that the vessels may regain their tonicity and normal function. But if the veins be greatly enlarged, a cure can only be effected by a surgical operation. If the disease be allowed to progress, the pressure of the testes upon the testicles causes these organs to waste away, and impotence is the result. Various operations have been devised for the cure of varicocele. Breschet applied to the enlarged veins two iron clamps which compressed

the vessels, the instruments being tightened by means of thumb-screws. The operation which I have found most successful, least painful, and productive of the least inflammation, is the one devised by Dr. Pancoast, of Philadelphia, and consists in compressing the veins by a strong ligature and a needle. The needle is first armed with a strong, well waxed, double hempen cord, the loop end being passed through the eye. The *vas deferens*, or spermatic cord (the excretory duct of the testicle), and the artery of the cord, having been carefully separated from the veins and pressed backward by the operator's thumb and first finger, the needle is then *made to pierce the skin* in front of the artery and *vas deferens*, or spermatic duct, and *behind* the veins, and is pushed through until it emerges from the skin on the opposite side of the scrotum. The needle is pulled through, the ligature removed from its eye, and the instrument again introduced into the opening first made through the skin, but this time it is passed *in front* of the veins, and made to emerge from the same opening as before. The double ligature is now behind the veins, and the needle in front of them, where it is allowed to remain. The loop end of the double ligature is now passed over the point of the needle, and the free ends are drawn tightly and tied over the shank of the needle, and thus firmly compress the veins between the ligature and the needle, effectually stopping all circulation through them. About the fifth day after the operation, the ligature should be tightened, and by the twelfth day the needle and ligature may be removed, and the cure will be found complete. The patient is rendered insensible to the pain which would otherwise be experienced, by the administration of chloroform or ether, or the production of local anæsthesia by means of Richardson's spray apparatus. (See Fig. 220.) This operation is the safest that can be employed, and if performed by a skillful surgeon no fears of bad results need be entertained. The operation is one, however, which requires not only a very accurate knowledge of the anatomy of the parts involved, but also very delicate manipulation. From a lack of these on the part of the operator, the *vas deferens*, which is the excretory duct of the testicle, or the spermatic artery, which supplies the testicle with blood, is liable to be included between the needle and the ligature, and obliterated, a result equivalent

to castration, for even obstruction of the artery will result in atrophy, or wasting away of the testicle. Such blunders have been committed by incompetent surgeons, and even by some distinguished for their skill, but who are devoid of sufficient caution in their operative surgical proceedings.

CASES TREATED.

1853. **Case I.** Mr. T. had been under my treatment for spermatorrhœa, when, entering my office one morning, he complained of a peculiar dragging sensation in the loins. I instituted an examination and discovered that he was suffering from varicocele of the left side. The enlargement of the veins was so great, I perceived that nothing but an operation would cure him. After some deliberation, he consented to submit to it. Ether was administered and the operation above described performed. On the eleventh day, the needle and ligature were removed, and the operation having proved successful, the patient was discharged.

Case II. Mr. M., aged twenty-five, was operated upon by me in 1867. In his case the disease was due, I think, to over-exertion, lifting heavy weights, and fatiguing exercise in the upright position. The operation caused an unusual degree of inflammation in the affected parts, which was subdued by the local application of cold packs. In ten days the needle and ligature were removed. The cure was permanent.

To these, I might add the histories of many other cases in which I have performed a similar operation with equally satisfactory results, but those mentioned illustrate the success of the treatment as well as any greater number that I might append.

LOCAL ANÆSTHESIA.

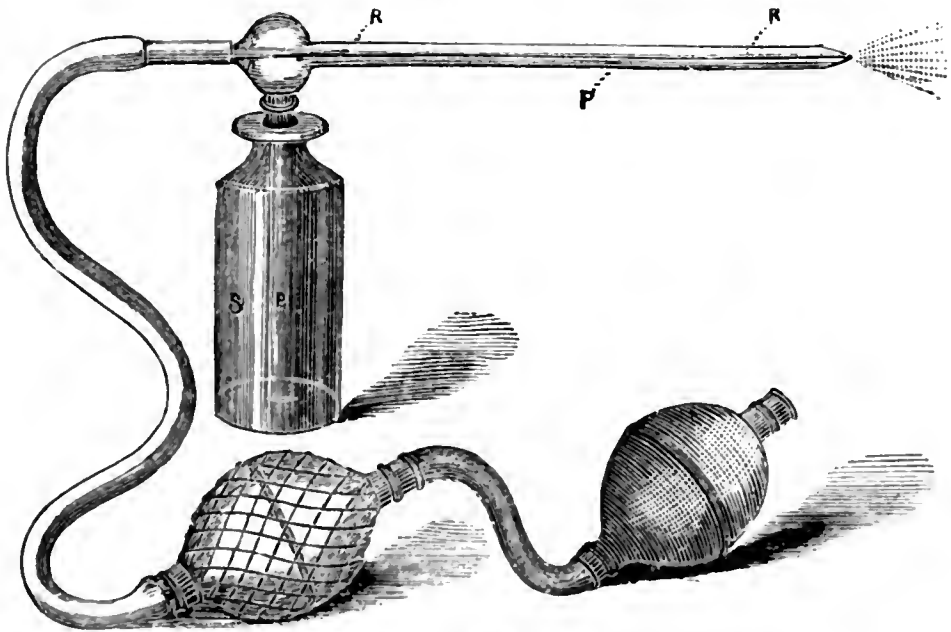
1854. We cannot overestimate the benefits derived from the discovery of *anæsthetics*. The unpleasant and oftentimes distressing incidents formerly attending surgical operations are now avoided. In the majority of cases, besides producing insensibility to pain on the part of the patient, the operation can be more perfectly performed, and the results are, therefore, more satisfactory.

1855. Local anæsthesia (inducing insensibility only in the affected part, while the patient retains his consciousness) is preferable

to general anæsthesia, in those minor surgical operations which do not involve a complicated dissection of the tissues. Several means have been devised for producing local anæsthesia. The freezing process, or producing local insensibility by the application of intense cold is believed to have been first introduced and employed by Dr. James Arnot, of London. He applied a mixture of pulverized ice and salt to the affected part. This mixture has been employed by eminent surgeons, and with uniform success, yet it has not been generally approved by the profession.

1856. Among the more satisfactory methods devised, I prefer the one introduced by Dr. B. W. Richardson, as the simplest and most reliable. It consists in directing a spray of ether and rhigolene against the affected part. The apparatus used for this purpose is represented in Fig. 220. The bottle is partially

Fig. 220.



Spray Apparatus for producing local insensibility to pain.

filled with ether, to which is added a small quantity of rhigolene. It is provided with a slender tube *p. p.*, passing downward into the liquid, and through which the liquid flows upward, because of the pressure generated by compressing the ball at the end of the rubber tubing. When the liquid is thus forced upward and outward, it flows through the opening at the end of the tube and is there atomized by the current of air coming through the

inner tube. R. R. The liquid being separated into such minute particles, rapidly evaporates, and thus freezes the part upon which it is thrown. The effect is momentary, and therefore harmless, for before it has lasted sufficiently long to injure the tissues, the operation is performed, and warmth and sensation have returned to them. I have frequently employed this mode of anæsthesia in lancing felons, removing tumors, and in other minor operations, and always with the most satisfactory results.

ACCIDENTS AND EMERGENCIES.

1857. Accidents and emergencies which require immediate attention frequently occur. Professional aid cannot always be instantly obtained, and hence fatal results often follow. It is, therefore, necessary that all persons should not only know how to proceed under such circumstances, but they should be able to exercise that deliberation and self-control so necessary in emergencies of all kinds. Most persons are more or less affected at the sight of blood or severe wounds, and it requires *will*-power to gain self-possession. One should act resolutely; otherwise he will find himself overcome and unable to render any assistance.

WOUNDS.

1858. Wounds may be classified as *incised*, *punctured*, *contused*, *lacerated*, *poisoned*, etc.

Incised wounds are those which are made with a sharp, cutting instrument, and are characterized by their extent of surface.

Punctured wounds are made with a pointed instrument, and distinguished for their depth rather than breadth.

Contused wounds are those produced by bruises.

Lacerated wounds are those in which the flesh is torn and mangled.

Poisoned wounds are made with a poisoned instrument, or by some poisonous reptile or insect, or rabid animal.

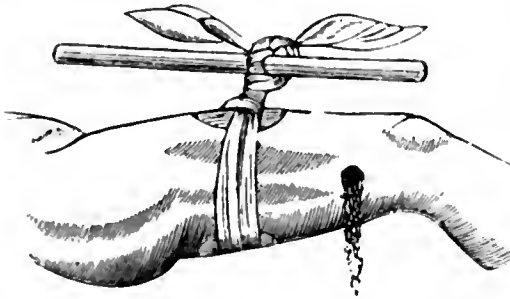
In all cases of wounds, the immediate danger is in the *shock* produced upon the nervous system, and in the liability to *hemorrhage*.

1859. **Shock.** If severe, it is attended by symptoms of extreme prostration, as feeble pulse, shivering, partial unconsciousness, fainting, hiccough, vomiting, and involuntary discharges of the urine and fæces.

1860. **Treatment of Shock.** The clothing should be loosened immediately after the accident, so that the blood may have free circulation, and the patient should be kept in a recumbent position. He should have plenty of fresh air and may inhale camphor or ammonia. If he can swallow, stimulants may be given, as whisky or brandy, but with care that they do not run into the windpipe. If he be unable to swallow, they may be administered as injections, but should gradually be discontinued as reaction takes place. A warm pillow placed at the back, and the use of electricity, may be beneficial.

1861. **Hemorrhage,** or bleeding, may generally be controlled by a *compress*, *tourniquet*, *flexion of the joint*, or *styptics*. A *compress* consists of several folds of cloth laid upon a wound (the edges of which have been brought together) and made secure by a moderately tight bandage.

Fig. 221.



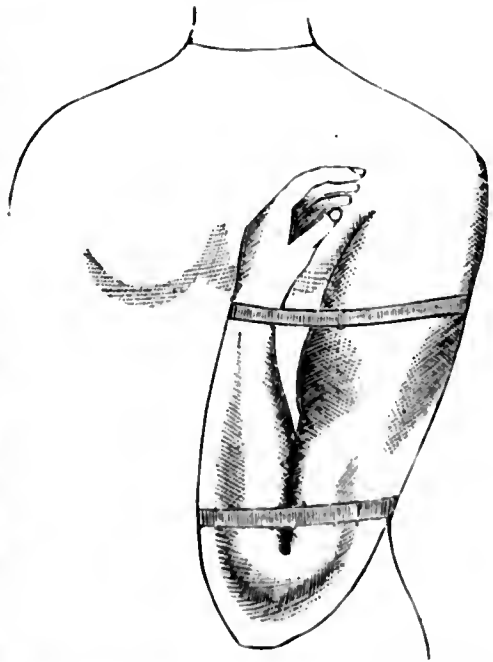
The Field Tourniquet as applied.

1862. A *tourniquet* may be temporarily supplied by rolling a handkerchief into a cord and tying it around the limb, over a compress, on the side of the wound nearest the heart. A stick is then thrust between the handkerchief and the skin and twisted around several times until the pressure is sufficiently great to arrest the circulation of the blood in the wounded part. A representation of this operation may be seen in Fig. 221.

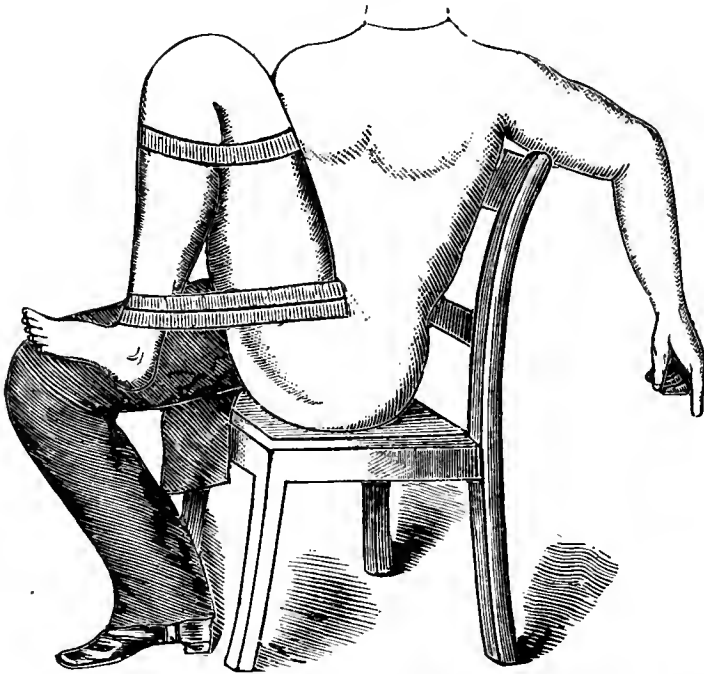
1863. *Flexion of the joint*, as represented in Figs. 222, 223, and 224, is adapted to

controlled by a *compress*, *tourniquet*, *flexion of the joint*, or *styptics*. A *compress* consists of several folds of cloth laid upon a wound (the edges of which have been brought together) and made secure by a moderately tight bandage.

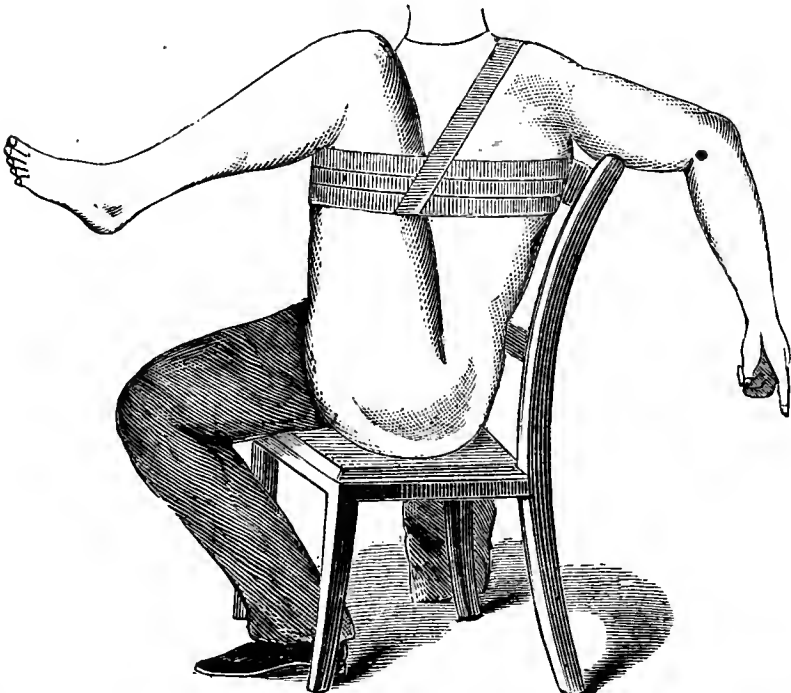
Fig. 222.



Mode of employing flexion for the arrest of hemorrhage from a wound located below the elbow.

Fig. 223.

Mode of employing flexion for the arrest of hemorrhage from a wound below the knee.

Fig. 224.

Mode of employing flexion for the arrest of hemorrhage from a wound located between the thigh and knee.

many cases of hemorrhage, and would have saved many a soldier's life during the late war, had it been employed. As water cannot flow through a rubber tube bent at a sharp angle, so the acute flexion of a limb prevents the free flow of blood through its arterial tubes.

1864. In some cases *styptics* may be directly applied to the wounded tissues. (See *Astringents*, ¶ 514.) Cold acts as a powerful styptic, and may generally be made available for arresting hemorrhage.

1865. **Poisoned Wounds.** The treatment of these should chiefly consist in the prevention of the spread of the poison. This may be done by tightly applying bandages above the wound and scarifying or sucking the parts. Nitrate of silver may then be used and the ligatures removed. Alcohol, in any form, is an antidote to snake poison. For the stings of insects, apply fresh earth, raw onion, plantain, spirits of turpentine, or ammonia.

FRACTURES AND DISLOCATIONS.

1866. The treatment of injuries received from the fracture of bones and the dislocation of joints should never be attempted by the inexperienced, nor should the management be left to incompetent physicians, but *skillful* surgical aid should at once be summoned.

DROWNING. (ASPHYXIA.)

1867. Recovery from drowning sometimes occurs when life is apparently extinct. The treatment, however, should be immediate and energetic, and should be given in the open air, unless the weather be too cold.

1868. **Treatment.** The patient should be gently placed upon his face with his wrist under his forehead. The tongue will then fall forward and the water run out of his mouth and throat, while the windpipe, or air-passage, will be free. To restore respiration, he should be instantly turned upon his side (the right being preferable), his nostrils excited with snuff or ammonia, and cold water dashed upon his face and chest. If this operation prove unsuccessful, replace the patient upon his face, care being taken to raise and support his chest, then turn the body gently on the side and quickly again upon the face. Alternate these movements about every four seconds, and

occasionally change sides. When the body is turned on the face, gentle but efficient pressure must be made along the back, between the shoulder-blades, to assist in forcing the air out of the lungs, but this pressure must be removed before the patient is turned back on his side. Persistently repeat this operation, and success will often be the reward. As soon as respiration is established, warmth may be promoted by the application of warm flannels to the body and bottles of hot water to the stomach, armpits, thighs, and feet. During the entire process of restoration, the body should be thoroughly rubbed *upward*. Turning the body upon the back or handling it roughly should be avoided. The person must not be held up by his feet, or be rubbed with salt or spirits. Rolling the body on a cask is improper, and injections of the smoke or infusion of tobacco are injurious. Avoid the constant application of the warm bath, and do not allow a crowd to surround the body.

FAINTING.

1869. When a person faints, *he should be allowed to remain or be placed in a recumbent posture*, and his clothing immediately loosened. The extremities should be rubbed, the patient allowed to have plenty of fresh air, and, if at hand, ammonia or camphor should be applied to the nostrils.

BURNS AND SCALDS.

1870. The danger arising from burns and scalds depends not only upon the extent of surface involved, but also upon the depth of the injury. Burns are most dangerous when occurring upon the head, chest, or abdomen.

1871. **Treatment.** Soothing applications, and those which will exclude the air, should be made. Grated potato, poultices of slippery-elm, sweet oil, cotton saturated in a mixture composed of two to three grains of carbolic acid and two ounces of glycerine, and linseed oil and white lead, are all beneficial for the treatment of burns. If internal treatment be necessary, it should be under the direction of a judicious physician.

SUN-STROKE.

1872. If the patient be suffering from sunstroke, he should be at once removed into the shade. If his face be *flushed*, apply

cold water to the head and neck, and mustard to the feet. The body should be bathed in tepid water and the head slightly elevated. If the countenance be *pale* and the symptoms denote exhaustion, the patient should be kept in a recumbent position, the extremities rubbed, camphor and ammonia inhaled, mustard applied to the spine, and stimulants, as brandy or whisky, administered.

1873. POISONS AND THEIR ANTIDOTES.

POISONS.	ANTIDOTES.
<p>ACIDS.</p> <p><i>Acetic Acid.</i> <i>Citric Acid.</i> <i>Muriatic Acid.</i> <i>Tartaric Acid.</i></p> <p><i>Sulphuric Acid,</i> <i>(Oil of Vitriol.)</i></p> <p><i>Nitric Acid,</i> <i>(Aqua Fortis.)</i> <i>Oxalic Acid.</i></p> <p><i>Carbolic Acid.</i></p> <p><i>Prussic Acid.</i> <i>Laurel Water.</i> <i>Oil of Bitter Almonds.</i></p> <p>These agents are speedily fatal.</p>	<p>Alkalies—carbonate of soda, lime, potash, magnesia—are antidotes to these poisons. As soon as the acid is neutralized, mucilaginous drinks, as flax-seed, gum arabic, slippery-elm, etc., may be given.</p> <p>Soap, in solution, or magnesia, will counteract its influence. Water should <i>not</i> be given, as it causes great heat when mixed with this acid.</p> <p>Lime-water, carbonates of lime and magnesia, in solution, are the only antidotes. Give mucilaginous drinks.</p> <p>No special antidote. Oil, glycerine, milk, flour and water, whites of eggs, magnesia, and flax-seed tea, may be used.</p> <p>Ammonia, by inhalation or in solution, may be used. Apply cold <i>douche</i> to the head.</p>
<p>ALKALIES.</p> <p><i>Liquor of Ammonia.</i> <i>Water of</i> “ <i>Muriate of</i> “</p> <p><i>Liquor of Potassa.</i> <i>Nitrate of</i> “ <i>(Saltpetre.)</i> <i>Carbonate of Potassa.</i> <i>(Pearlash.)</i> <i>Salts of Tartar.</i></p>	<p>Vegetable acids, as vinegar, lemon-juice, citric and tartaric acids, neutralize this poison.</p> <p>All the fixed oils, as linseed, castor, and sweet oil, also almonds and melted lard. destroy the caustic effects of these poisons. Mucilaginous drinks may be given.</p>

POISONS.	ANTIDOTES.
IODINE, <i>In its different forms.</i>	Starch, wheat flour mixed with water, whites of eggs, milk, and mucilaginous drinks, are excellent antidotes.
VOLATILE OILS AND AGENTS. <i>Creosote,</i> <i>(Oil of Smoke.)</i> <i>Oil of Tar.</i> <i>Oil of Turpentine.</i>	The same antidotes as in case of poisoning with iodine may be used in this, or the stomach may be evacuated with an emetic or a stomach-pump.
ALCOHOL.	A powerful emetic of white vitriol or mustard should at once be given, cold should be applied to the head, and the extremities vigorously rubbed.
ANTIMONY AND ITS COMPOUNDS, <i>Tartar Emetic.</i> <i>Butter of Antimony.</i> <i>Oxide of Antimony.</i>	If vomiting have not occurred, induce it by tickling the throat and giving large draughts of warm water, after which administer astringents, as infusions of galls, oak-bark, Peruvian bark, or strong green tea.
ARSENIC AND ITS COMPOUNDS. <i>White Arsenic.</i> <i>Yellow Sulphuret of Arsenic.</i> <i>Red Sulphuret of Arsenic.</i> <i>King's Yellow.</i> <i>Fly Powder.</i> <i>Arsenical Paste.</i> <i>Arsenical Soap.</i> <i>Scheele's Green.</i> <i>Paris Green.</i>	Oils or fats, lard, melted butter, or milk, should be given, then induce vomiting with white vitriol or hydrated peroxide of iron; fine powdered iron rust or magnesia may be given every five or ten minutes. Mucilaginous drinks should be given as soon as the stomach is evacuated.
COPPER AND ITS COMPOUNDS. <i>Blue Vitriol.</i> <i>Verdigris.</i>	<i>Avoid the use of vinegar.</i> Give albuminous substances, as milk, whites of eggs, wheat flour in water, or magnesia; yellow prussiate of potash in solution may also be given freely.
LEAD AND ITS COMPOUNDS. <i>Acetate of Lead,</i> <i>(Sugar of Lead.)</i> <i>White Lead.</i> <i>Red Lead.</i> <i>Litharge.</i>	In lead or painter's colic, purgatives and anodynes may be given, together with large doses of iodide of potassium.
MERCURY AND ITS COMPOUNDS. <i>Corrosive Sublimete.</i> <i>White Precipitate.</i> <i>Red Precipitate.</i> <i>Calomel.</i>	Albumen in some form should be given; if the poison be not absorbed, follow with a mustard or lobelia emetic.

POISONS.	ANTIDOTES.
<p>ACRONARCOTICS. <i>Ergot.</i> <i>Black Hellebore.</i> <i>Veratrum,</i> <i>(American Hellebore.)</i> <i>Aconite.</i> <i>Fox-glove.</i> <i>Gelseminum.</i></p> <p><i>Belladonna.</i> <i>Stramonium.</i></p> <p><i>Nux Vomica.</i> <i>Strychnia.</i></p> <p><i>Poison Oak.</i> <i>Poison Vine.</i></p>	<p>The general treatment indicated for this class of poisons, is to evacuate the stomach with a stomach-pump, or an emetic composed of four or five grains of tartar emetic, fifteen or twenty grains of sulphate of zinc, or large doses of mustard, repeated every quarter of an hour until the full effect is produced.</p> <p>Morphine, sassafras, iodine, and stimulants.</p> <p>Large doses of camphor, chloroform, and tobacco, may all be beneficial.</p> <p>Muriate of ammonia, in solution, may be applied externally, and from ten to fifteen grains given internally; soda is also useful.</p>
<p>NARCOTICS. <i>White Henbane.</i> <i>Opium.</i></p>	<p>Sassafras may be used as an antidote for henbane. Belladonna is an antidote of opium; cold water should also be applied to the head of the patient, and the extremities should be well rubbed.</p>
<p>ANIMAL POISONS. <i>Spanish Fly.</i> <i>Potato Fly.</i></p>	<p>Excite vomiting by drinking sweet oil. Sugar and water, milk, or linseed tea in large quantities, and emollient injections, are valuable.</p>

OLD SORES. (CHRONIC ULCERS.)

1874. Under this head we may properly consider the class of affections known as "Fever-sores," "Running-sores," "Ulcers," etc. These sores have common characteristics, yet each possesses certain peculiarities, which have led to their division into *irritable*, *indolent*, and *varicose*. (Specific ulcers,—manifestations of cancerous and syphilitic affections,—are treated of in another portion of this volume.) These peculiarities are not constant, one form of ulcer often changing into that of another. A feature common to all, however, is their slowness to heal, which has sometimes led to the belief that they are incurable. Another popular notion is, that their cure is detrimental to the health of the patient. With equal propriety we might say that it is dangerous to cure diarrhœa, dysentery, consumption, or cancer. As a result of these erroneous impressions, many people suffer from chronic ulcers for years, and even a life-time,

without attempting to obtain relief. Chronic ulcers usually appear upon the lower extremities. The depth and appearance of the ulcer depend upon its character and the thickness of the

Fig. 225.



A Chronic Ulcer.

tissues where it is situated. Fig. 225 represents a chronic ulcer, or fever-sore, as it appears upon the ankle.

1875. **The Irritable Ulcer** is painful and tender, the slightest injury causing it to bleed. It is of a dark purplish hue and filled with spongy, sensitive granulations. It discharges a thin, bloody

matter, which is sometimes very fetid and acrid, and excoriates the tissues if it come in contact with them. The edges of this species of ulcer are shelf-like and ragged, and turn inward. The adjacent structures are red and swollen. Very often they are attended by severe constitutional disturbances, such as chills, fever, and great nervous prostration and irritability.

1876. **In the Indolent Ulcer** the edges are not undermined, but turned outward, and are rounded, thick, glossy, and regular. The granulations are broad, flat, pale, insensible, and covered with a grayish, tenacious matter. The surrounding parts are not very sensitive, but the limb on which it is located is apt to be swollen. This is the commonest form of ulcer, and often remains for years.

1877. **Varicose Ulcer.** This species of ulcer occasions a swollen or enlarged condition of the neighboring veins, which are very much enfeebled. It almost invariably appears below the knee, and may be either indolent or irritable. It is generally sensitive to the touch, and sometimes excessively painful. Knots of superficial veins may often be seen beneath the skin.

As I have before remarked, these various species of ulcers are but modifications of one form of chronic sore. The patient may assert that he enjoys excellent health, but if we question him closely, we find that the sore irritates him, and that there is

sufficient constitutional disturbance to prevent the healing powers of nature from effecting a cure.

1878. **Treatment.** The cure of these sores is necessarily slow, and whoever expects to obtain *immediate* relief will be disappointed.

1879. Constitutional treatment is of the utmost importance, and should, therefore, be thoroughly and persistently applied. The nutritive system, especially the absorbents, should be kept active, as these are the organs by which the broken-down tissue surrounding the sore is replaced by that of a higher grade of vitality. For this purpose, the best alteratives are required. If secretion and excretion be not normally performed, the blood becomes poisoned by the absorption of unhealthy matter from the sore, and various constitutional disturbances occur. If, at any time during treatment, constitutional disturbances be manifested by fullness or disagreeable sensations in the head, nausea, pain, cough, chills, or fever, a thorough cathartic should be given. If the patient be robust, a repetition of the same once a week will be very beneficial. My Golden Medical Discovery and Pellets will be productive of the best results. If the urine be scanty or loaded with deposits, add to every other bottle of the Discovery one ounce of the acetate of potash, and administer according to the directions given. The skin is apt to be dry, and will require the daily use of an alkaline-bath, followed by a thorough rubbing. Take a spirit vapor-bath once a week.

1880. The local treatment must depend upon the character of the ulcer. If the sore be *irritable*, soothing applications, such as warm poultices or steaming it in a vapor of bitter herbs, will be found highly beneficial. A poultice of powdered slippery-elm and lobelia is very soothing, and hence well adapted to this purpose. If the ulcer be *indolent*, a stimulating application is necessary. The hardened, callous state of the edges must be removed by alkaline applications. A strong solution of saleratus, a lye poultice, or even a caustic, prepared by boiling the lye from hard-wood ashes to the consistence of syrup, will prove of great utility. One or two applications of the latter are generally sufficient.

The sore and surrounding parts may then be stimulated by the application of lint saturated in the compound tincture of

myrrh (which can be obtained at any drug-store). If the part be flabby and the granulations indolent, the application of astringents (§ 514), after cleansing the ulcer, is often followed by excellent results. An application, composed of half a drachm of carbolic acid and one ounce of glycerine, will greatly hasten the healing of indolent ulcers. The sore should be so covered as to effectually exclude the light and air, and the dressing need not be changed oftener than every other day. A preparation known as the "Black Salve of the American Dispensary" is both cleansing and healing, and one of the best applications that can be made. It is advisable to occasionally replace one application by another, as the constant use of a preparation is apt to weaken its effects.

DISEASES OF THE BONES.

1881. The bones are liable to various diseases. We shall, however, in this connection, but briefly consider a few of the affections to which they are subject.

1882. **Inflammation of the Bones** (*Osteitis*). The inflammation of a bone is a disease of very infrequent occurrence. It may be caused by external injuries, or by some constitutional taint, as syphilis, scrofula, rheumatism, or gout.

1883. **Symptoms.** The patient experiences an excruciating, deep-seated, throbbing pain, which is increased by any movements, and is usually more severe at night. The flesh over the affected bone is tender, and as the disease progresses becomes swollen. The constitution sympathizes with the local disease, and consequently the skin is hot, and the pulse quick. As the inflammation approaches suppuration, there are chills, delirium, profuse sweating, and all the general indications of hectic fever.

1884. **Treatment.** The most skillful medical as well as surgical aid may be employed, and yet a long time is generally required to restore a diseased bone to its normal condition. The treatment must be prompt and energetic, or the inflammation will result in suppuration and destruction of the bone. Perfect quiet is necessary. A spirit vapor-bath should first be employed and my Compound Extract of Smart-Weed be taken in suitable doses. Warm fomentations or poultices, medicated with the Extract of Smart-Weed, should be applied to the affected part.

The circulation must be controlled by the use of aconite (§ 596), or veratrum (§ 597), and, if necessary, anodynes may be administered at night.

Although the symptoms are less severe in the *chronic* form, yet they are similar to those of the *acute*, and therefore require similar treatment, together with an alterative course of medicine. My Golden Medical Discovery is excellent to fulfill chronic indications, and iodine, locally applied, is often found beneficial. If matter be formed, it must be released, or it will burrow and cause an extensive destruction of tissue. All constitutional taints should be removed and the general health improved.

1885. **Fever-Sore** (*Necrosis*). By the term *necrosis* we mean mortification, or the state of a bone when it is deprived of life. Dunglison says: "This condition is to the bone what *gangrene* is to the soft parts." It is popularly known as *Fever-sore*, there being no distinction made between this species of sore and those ulcers (see § 1874) which affect only the soft tissues of the body. When any part of a bone becomes necrosed, it is treated as a foreign body. Nature effects its removal, and at the same time attempts to replace it with new and healthy

Fig. 226.



Hand drill for boring bone.

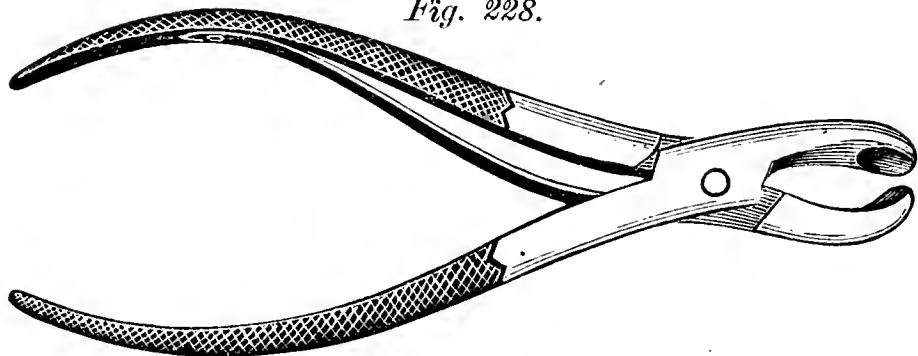
materials. In consequence of this process, the dead portion is often inclosed in a case of new, sound bone, termed *involucrum*; when this is the case the dead portion is termed *sequestrum*. If,

Fig. 227.



The osteotrite, for enlarging openings and cutting carious bone.

however, it be superficial, and separate from the parts beneath, it is called an *exfoliation*. This healing process, by which the involucrum is formed, cannot be completed while the dead portion remains. Hence numerous openings are made through the involucrum, to permit the escape of the sequestrum. When a

Fig. 228.

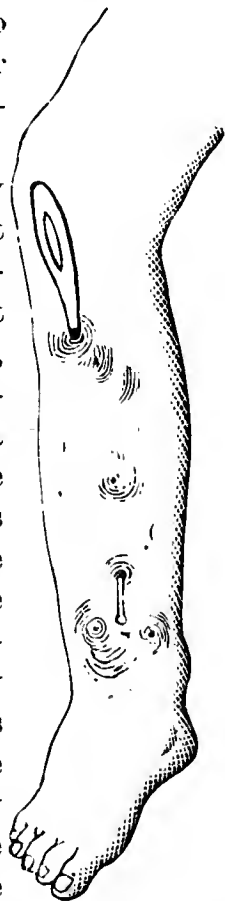
Gouge forceps for excavating bone.

surgical operation is performed for the removal of the necrosed bone it is called *sequestrotomy*. The instruments which I usually employ for this practice are represented in Figs. 226, 227, and 228.

Fig. 229.

1886. **Causes.** Fever-sore may be due to inflammation, injuries, working in phosphorus, or from the inordinate and protracted use of mercury.

1887. **Symptoms.** The pain frequently commences in the night, and all the different stages are passed, until, finally, the result is mortification or death. The entire bone, or only a part of it, may be affected; the parts become swollen, matter forms, and unless it be artificially evacuated, it will in time work its way out through a fistulous opening. As the disease progresses, the adjacent tissues become thickened and numerous openings are formed, which communicate with the bone, and often with each other, so that a probe may be passed from one to the other, as represented in Fig. 229, copied from a drawing by Dr. Howe. The discharge from fever-sores varies in character, and usually has a fetid odor. The surgeon can readily distinguish between healthy and unhealthy bone by the use of a probe. The pus discharged in necrosis contains minute particles of bone which may be felt by rubbing it between the fingers. Sometimes large pieces present themselves at the openings. The general



Necrosis of the tibia. A common probe is passed through the sin-
uses.

health is seriously impaired, and the patient becomes debilitated, anæmic, and hectic.

1888. **Treatment.** The process of repair will be necessarily tedious, and we must assist nature to remove the old bone and promote the formation of the new. An alterative course of treatment is indicated, and must be persistently followed. Give my Golden Medical Discovery and Purgative Pellets in sufficient doses to keep the bowels regular. Tonics may be necessary to restore the nutritive functions, and for this purpose a preparation made from two grains of hydrastin (§ 613) and five grains of phosphate of iron, taken three times a day, is excellent; or the pyrophosphate of iron (§ 618) may be given instead of the phosphate, in doses of two grains. All efforts to heal the sores, so long as dead bone remains, will prove fruitless. The sores should be thoroughly cleansed with injections of an alkaline solution, after which bandages, moistened in glycerine, may be applied. If they emit a fetid odor, add a few drops of carbolic acid to the glycerine. The dead bone can be but slowly suppurated, therefore time, and indeed sometimes the life itself, may be saved, by removing it with surgical instruments. In the operation of sequestrotomy, the surgeon must exercise great judgment. Carelessness will prolong the disease and subsequently necessitate another operation or, perhaps, an amputation.

HERNIA. (RUPTURE, OR "BREACH.")

1889. By the term *Hernia*, we mean a tumor, which is formed by the displacement of the intestines, the omentum (covering of the bowels), or both, and which protrudes from the abdominal cavity. The most common varieties are *umbilical*, *inguinal*, and *femoral* hernia. The tumor usually protrudes from the naval or groin. Children are most subject to umbilical, males to inguinal, and females to femoral hernia.

1890. **Causes.** These are either *predisposing* or *exciting*. Any thing which occasions general or local muscular debility, as dropsy, pregnancy, abscesses, wounds, obstructions to natural evacuations, etc., is a predisposing cause of hernia. The exciting cause is pressure applied to the contents of the abdomen, as straining in evacuating the bowels and bladder, lifting heavy weights, or violent physical exertion.

1891. **Symptoms.** The only characteristic symptom of hernia is the presentation of an elastic, or doughy tumor of variable size, which either gradually or suddenly makes its appearance. There is flatulence, uneasiness, and sometimes pain in the abdomen.

1892. **Treatment.** The treatment of hernia is by *reduction* and *retention*. Reduction consists in returning the protruding intestine to its proper place through the opening by which it escaped. This is accomplished either by manipulation or a surgical operation. Retention is effected by wearing a mechanical appliance, called a *truss*.

1893. As soon as the tumor protrudes, or the "bowel comes down," the patient should assume the recumbent posture, with his shoulders and feet elevated. The patient or an attendant should grasp the hernia, and with gentle, but gradually increasing pressure upon the tumor, attempt to replace it. At the same time let the assistant knead the bowels upward by pressing upon the integument, so that the intestine may, so far as possible, be pushed away from the point of protrusion. Sometimes the contraction of the muscular fibers at the point where the hernia makes its exit is so great that the tumor cannot be replated. In this case the system should be relaxed by lobelia (not given in doses to produce vomiting), and as soon as the patient is thoroughly under its influence, the manipulations may be resumed. When there is any difficulty experienced in putting back the "breach," or rupture, professional assistance should be promptly summoned. After the reduction of the rupture, a truss should be properly adapted, applied, and constantly worn, to prevent the protrusion of the hernia.

1894. **Surgical Treatment.** When the hernia has become strangulated and cannot be returned by manipulation, a surgical operation will be necessary. Whenever the necessity for such a procedure is apparent, it should be performed *immediately*, for the greater the delay the greater the liability to fatal results. The operation consists in cutting down upon the strangulated bowel, thus relieving it of its constriction and facilitating its replacement. It is a delicate operation, and must be skillfully performed. After the operation, the patient requires appropriate hygienic treatment.

1895. *The Radical cure* of hernia is seldom accomplished, except by surgery. The object of the operation is to obliterate the canal through which the rupture passes. Several methods are pursued by different surgeons, but I prefer the one known as Agnew's operation.

ANEURISM.

1896. The word *aneurism* literally signifies a *widening*, and is applied to a soft tumor which arises from an unnatural dilatation or rupture of the coatings of an artery. The chief danger in this disease is that the arterial coats which form the walls of the tumor are liable to be suddenly ruptured, thereby producing fatal, internal hemorrhage.

1897. **Symptoms.** The principal symptom is a well-defined, oval, or globular tumor, slightly compressible, elastic, and which pulsates with every beat of the heart.

1898. **Treatment.** This consists in tying the artery between the tumor and heart or in applying pressure over the artery. Pressure may be made in various ways, but must be continued for a considerable length of time, in order to be effectual. If the artery be tied, in most cases a cure will speedily result. This operation is more or less difficult, according to the location of the aneurism. Operative surgery has, however, been brought to such perfection during the past half-century that almost any blood-vessel in the body may be safely and successfully tied, thus effectually obviating all immediate danger which may arise from aneurism.



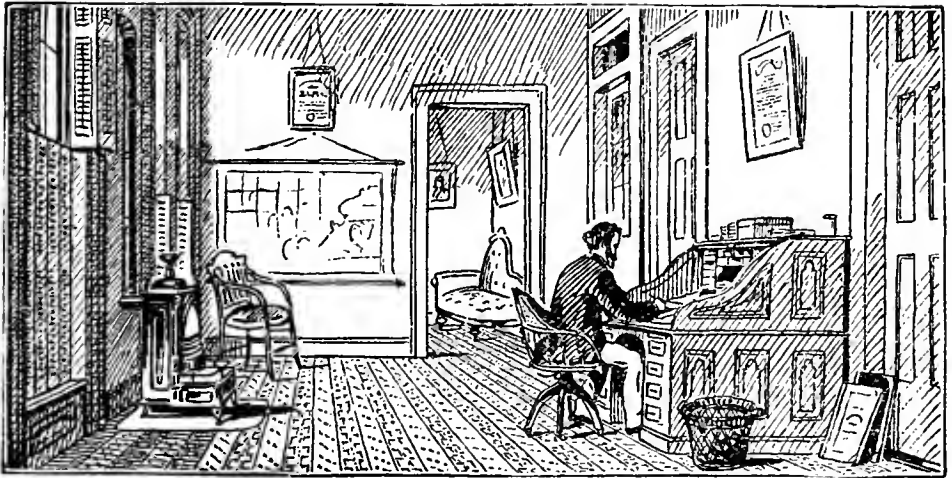
APPENDIX.



The World's Dispensary.

THOUGHTS ADDRESSED TO INVALIDS.

1899. The invalid reader may desire to learn more concerning my resources for treating the sick. The World's Dispensary was established for the purpose of affording enlarged facilities for treating all forms of Chronic Diseases, particularly those of a delicate, obscure, complicated, or obstinate character, as well as for the skillful performance of Surgical Operations for the cure of diseases and deformities. It is organized with a complete staff of Physicians and Surgeons, each devoting his whole time and attention to some particular branch of practice, by which the greatest skill is attained. These physicians daily confer with me, as I supervise the entire medical and surgical practice. All doubtful, obscure, or difficult cases are submitted to a council composed of the entire Faculty of the institution. Pharmacentists are employed to compound the medicines prescribed. Likewise, a physician, who is also a skillful chemist, is constantly engaged in analyzing urine. He thus detects the exact morbid

Fig. 231.

World's Dispensary.—The Author's Private Office.

changes which it has undergone in certain obscure diseases, and can unequivocally indicate the class of remedies required for restoration. Several gentlemen are also employed as recording and filing clerks.

For the purpose of enabling us to conduct our extensive correspondence, stenographers are employed, to whom replies are dictated. Afterwards the letters are written out in full, generally on a type-writing machine, which prints them in plain, legible

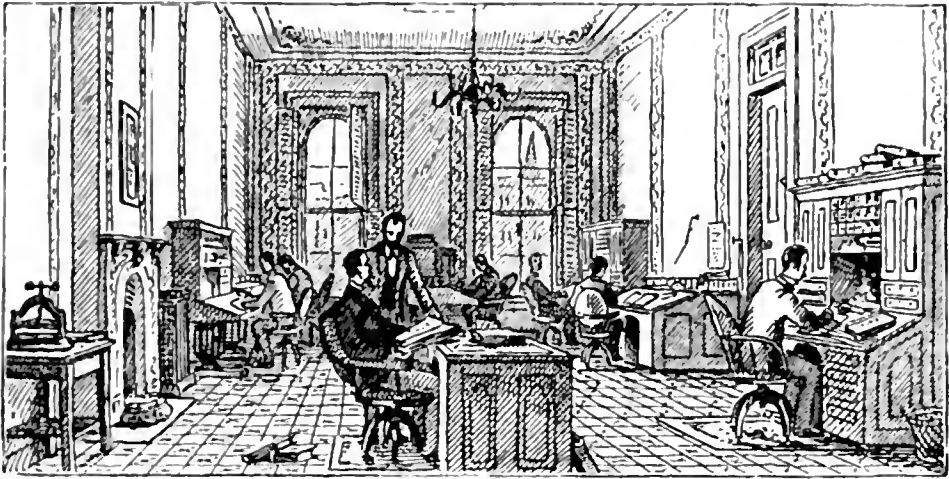
Fig. 232.

Type-Writer.

characters. These machines are operated as rapidly as a person can think of the letters that compose a word, each operator thus accomplishing the work of several copyists. By this system, we are enabled to correspond with our patients as rapidly as we can talk. Our practice has attained immense proportions, necessitating so large a correspondence that a dozen physicians could not possibly conduct it all and give each patient's case careful attention, without the employment of short-hand writers and all other facilities which modern invention has provided. By the adoption of these, we are enabled to fully meet the demands of the public, give every case its-due attention, and prescribe remedial agents of greater intrinsic value than gold.

1900. As many persons, particularly young ladies and gentlemen, having catarrh or other chronic diseases, are very sensitive and fearful that somebody may know that they are afflicted and

Fig. 233.



World's Dispensary.—One of the Rooms Occupied by the Medical Faculty.

employing medical treatment, precautions are taken that none who consult us may incur the least risk of exposure. Although none but the most honorable and trustworthy gentlemen are employed as assistants, yet as a *guarantee* of perfect security to our patients, that every communication, whether made in person or by letter, will be treated as *sacredly confidential*, each professional associate, clerk, and assistant, is required to take a solemn oath of secrecy. Great care is also taken to send all letters and medicines carefully sealed in plain envelopes and packages, that no one can even *suspect* the contents or by whom they are sent.

1901. **Advantages of Specialties.** By a perfect system of subdividing the practice of medicine and surgery in this institution, every invalid consulting us is treated by a specialist—one who devotes his undivided attention to the particular class of diseases to which his or her case belongs. The advantage of this arrangement must be obvious. Medical science offers a vast field for investigation, and no physician can, within the limit of a single life-time, achieve the highest degree of success in the treatment of *every* malady incident to humanity. A distinguished professor in the medical department of one of our universities, in an address to the graduating class, recently said: “Some professional men seem to be ashamed unless they have the character of universal knowledge. He who falls into the error of studying every thing will be certain to know nothing well. Every man must have a

Fig. 234.

World's Dispensary.—One of the Reception Rooms.

good foundation. He must, in the first place, be a good general practitioner. But the field has become too large to be cultivated in its entirety by one individual. Hence the advantage of cultivating special studies in large towns which admit of the subdivision of professional pursuits. It is no longer possible to know every thing; something must be wisely left unknown. Indeed, a physician, if he would know any thing well, must be content to be profoundly ignorant of many things. He must select something for special study and pursue it with devotion and diligence. This course will lead to success, while the attempt to do every thing terminates unavoidably in failure. Let there be single hands for special duties." The diversified tastes and talents of physicians cause each to excel in treating some one class of diseases, to which he devotes more attention and study than to others. One medical student manifests great interest in the anatomy, physiology, pathology, and treatment of diseases, of the eye. He becomes thoroughly familiar with the minutest details of that organ and its diseases, and so thoroughly qualifies himself in this branch of knowledge, that he is able to cure an inflammation or other affection of the eye in a very short time. Another student is more interested in some other class of diseases, for the study of which he has a liking, and neglects to inform himself in the ophthalmic branch of medical and surgical science. If, after engaging in the practice of his chosen profession, he is consulted by persons suffering from diseases of

Fig. 235.

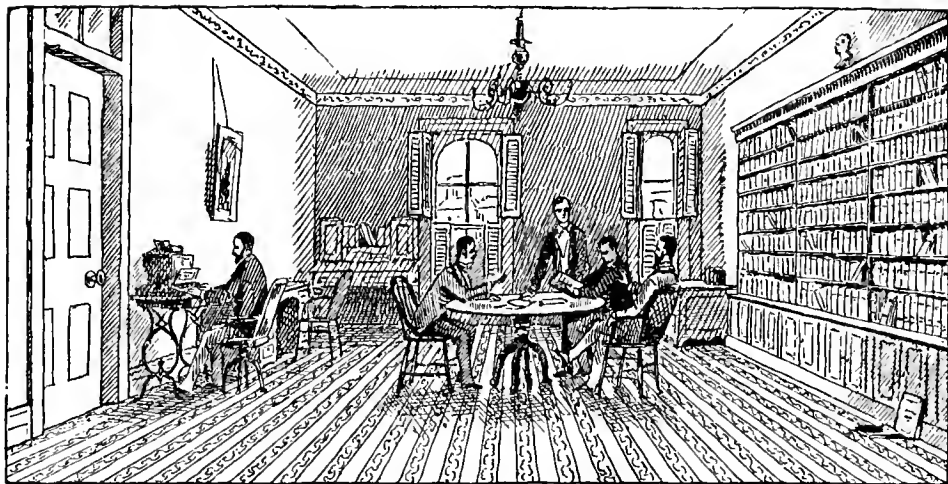
World's Dispensary.—One of the Consultation Rooms.

the eye, he tortures them with unnecessary and oftentimes injurious applications, clumsily and carelessly made, and as the result of such unskillful treatment, the inestimable blessing of sight is often sacrificed.

The great majority of physicians allow acute maladies, diseases of children, and the practice of midwifery, to engross the greater part of their time and attention. They manifest an absorbing interest in every thing that relates to these subjects, and devote little or no time to acquiring an intimate knowledge of the great variety of chronic maladies which afflict mankind. They acquire skill and reputation in their favorite line of practice, but are annoyed if consulted by one suffering from some obscure chronic affection, usually turn the invalid off with a very superficial examination, and, perhaps, only prescribe some placebo,* desiring to conceal their lack of familiarity with such diseases. The treatment of chronic diseases being his vocation, the specialist is equally annoyed if consulted by those suffering from acute diseases, but does not pursue the inconsistent course of assuming to treat them. He refers them to those of his medical brethren whose daily dealings with such cases render them more competent than himself to treat them. He is aware that no man can succeed in any study or business for which he

*A "placebo" is a harmless and valueless prescription, which physicians sometimes make merely to gratify the patient, as a dose of "bread pills," etc.

Fig. 236.



World's Dispensary.—Medical Council Room.

possesses no talent or relish, and he does not wish to be a “jack of all trades and master of none.”

1902. **Advertising.** Having thoroughly qualified himself for the practice of some particular branch of the healing art, the specialist sees no impropriety in acquainting the public with his ability to relieve certain forms of suffering. He believes that medical men should possess equal rights with other business men, and that any code of medical ethics which would deprive him of any of the sacred rights guaranteed to all by the liberal laws of our country, is professional *tyranny* and merits only his contemptuous disregard. Nor does he display any false modesty in the *manner* of making known his skill. He maintains that he has an undoubted right to place his claims to patronage before the public by every fair and honorable means. He recognizes the display of goods in the merchant's show windows as no less an advertisement and in no better taste than the publication of a card in the newspaper. So likewise he regards the various devices by which the extremely *ethical* (?) physician seeks to place himself conspicuously before the public, as but so many modes of advertising, and as no more modest than the publication of cures actually performed, or his announcements through the press, of his superior professional resources for treating certain maladies. (See ¶ 677.)

1903. The physician who affects a “holy horror” of the “*advertising doctor*,” liberally bestowing upon him the epithet

Fig. 237.

World's Dispensary.—Prescription Department.

of "quack," announces *himself* a graduate, talks learnedly, and gives notice to the public in *some* way that he is ready to serve them. He endeavors to impress upon the mind of the patient and family his skill, frequently exaggerates the extent of his practice, rides furiously about when he has no professional calls, keeps up business appearances by driving several horses, or joins influential societies. He may make a great display in manner, dress, pretensions, writing for the newspapers, exhibiting literary pedantry, and referring to the superior facilities afforded by some particular school or society to which he belongs; or by editing a medical journal, ostensibly for the advancement of medical science, but practically to display titles or professorships, to publish reports which flatteringly allude to cases he has treated, the number of capital surgical operations he has performed, or the distinguished families he is treating. All these are but *modes of advertising*,—artful, but not refined tricks, resorted to for private announcement. We say to all such advertising diplomatists, that these clandestine methods are not so honorable as a direct public statement of the intentions and proposals of a medical practitioner, who thereby incurs an individual responsibility before the law and his fellow-man.

1904. No good reason has ever been assigned why any well-educated, experienced physician may not publish facts and evidence to prove his skill, especially when these are abundant and conclusive. The following extract from an able article by the

Fig. 238.

World's Dispensary.—Counting Room.

Rev. Thomas K. Beecher embodies a sound view of the subject of medical advertising. He says: * * “I am glad that the doctor cured him ; I am glad that the doctor put it in the paper that he could cure him. And if any doctor is certain that he can cure such diseases and don’t put it in the paper, I am sorry. What a pity it would have been had this doctor come to town with his wealth of science and experience and gone away leaving him uncured! What a pity it would have been if he had been so prejudiced against advertising as to read the responsible certificates of the doctor and give him the go-by as a quack! What are newspapers for, if not to circulate information? What more valuable information can a newspaper give than to tell a sick man where he can be cured? If a man has devoted his life and labor to the study of a special class of diseases, the necessity for his saying so becomes all the more pressing. His *duty* to advertise becomes imperious.

When I was in England, I found on all the dead walls of London, placards, declaring that Dean Stanley, Chaplain to the Prince of Wales, would preach at such a place; that his grace, the Archbishop (I think) of Canterbury would preach at another time and place ; again, that an Oxford professor would preach. In short, religious notices were sprinkled in among the theater bills, and the highest church dignitaries were advertised side by side with actors, singers and clowns. Of course, I was shocked by it, but in a moment I bethought me,—if it be all right and

Fig. 239.

World's Dispensary.—Advertising Department.

dignified to hire a sexton to ring a bell when the minister is going to preach, it is all the same to silence the bell and hire a bill-sticker to tell the same news, the essential thing being to tell the truth every time. The remedy for the lying advertisements is for honest men to tell the truth. When iniquity cometh in like a flood, then the spirit of the Lord lifts up the standard. A really able man, whatever be his gifts, makes a great mistake if he fail to use those gifts through want of advertising."

1905. If a physician possesses knowledge that enables him to remedy diseases heretofore regarded as incurable, what virtue or modesty is there to "hide his light under a bushel"? In this free country people think and act for themselves and all have a deep concern in the subject of health.

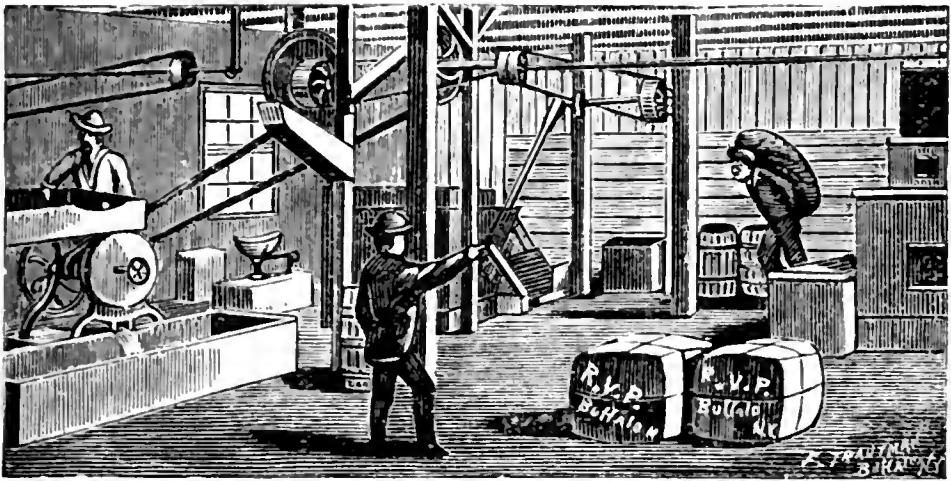
The strong popular prejudice against doctors who advertise is due to the fact that, by this method, so many ignorant charlatans are enabled to palm off their worthless services upon the ignorant and credulous; but the practice of such imposition should not cause a presumption against the public announcement of real skill, for the presence of baser metal bears conclusive evidence that the pure also exists.

Whoever possesses any thing which will benefit humanity, either mentally, morally, or physically, ought to inform the world of his possession. We say *ought*, for it is a moral duty. To confine a knowledge of it to a certain nation, race, or class, is to

Fig. 240.

World's Dispensary.—One of the Manufacturing Chemist's Rooms.

endorse the rights and customs of the Persian Magi. If Christianity had been confined to the Israelites, how much of the good which we attribute to its promulgation would we have to subtract from the present result! But the gospel was to be preached to all nations,—its ministers were to go among the people and tell them, or otherwise inform them, of the great good which had been committed to them. They were to tell them of the great cure for spiritual ills. But man's ills, like his nature, are two-fold, for he also has physical ills, and it is not just as rational for the physician to tell the people how and where they may find a remedy for physical disease as for the Christian minister to tell them how and where they may find a cure for spiritual disease? If the minister neglected to tell them, all (physicians included) would accuse him of a dereliction of duty. Why should many of these same physicians shake their heads depreciatively when the physical minister performs his duty? They murmur something about injuring their honor, forgetting that it is a questionable honor that will be tarnished by the public atmosphere. Furthermore, these modest, honorable physicians,—these modern devotees to the mystic rites of the ancient fraternity, do advertise, but they pursue the cheaper methods of advertising, using their friends and patrons as mouth-pieces. The proceedings of Medical Societies are offered to the public, and it is a coveted mode of advertising for these physicians to have their names enrolled on the official list of these societies. This class of physicians form

Fig. 241.

World's Dispensary.—Drug Mills.

a class of medical protectionists, and their opposition to press advertisements is founded upon a feeling of selfishness rather than a sense of honor. Because of their ignorant or injudicious practice many of these physicians are the worst enemies of humanity. Their motto is "cure or kill." Very frequently they kill, and they are of more benefit to the undertakers and clergymen than their patients. Government lands and bonds are advertised, and we question neither the propriety of the advertisements, the fertility of the lands, nor the genuineness of the bonds. Manufactures, of every description, are extensively advertised, yet we do not hesitate to select our clothing or furnish our homes from the advertised stock. Colleges (medical as well as others) and all institutions of learning issue their circulars and are also represented in the columns of the press, yet we do not hesitate to send our sons and daughters to their class-rooms. The famous hospitals of Europe are advertised, both through the commendations of persons who have been benefited by the treatment there received, and the favorable comments of the press. The press—one of the results of the great mental awakening of the sixteenth century—has been an instrument of reform. It is the natural enemy of mysticism. Its highest purpose should be the circulation of truth. Falsehood in the garb of truth may gain an entrance to its columns, but we find wolves in sheep's clothing everywhere—even in our pulpits. To brand all medical advertisements as evidences of quackery in the advertiser, is simply

Fig. 242.

World's Dispensary.—One of the Percolating and Filtering Rooms.

absurd. We read the other advertisements with perfect confidence, accepting the assertions as expressions of perfect candor. The general reformation of thought in the sixteenth century has been felt in every department of our social life, but the old institutions and customs of the dark ages still live, notwithstanding the vigorous growth of modern ideas. Romanism erects her cathedral by the side of the Protestant church. The disciple of Hippocrates is the rival of the modern disciple of Æsculapius. The former, like the ancient Roman friar, finds a peculiar charm in ostentatious seclusion, and waits for the people to come to him to be healed. The latter, like Luther and his followers, place the means of self-information in the hands of the people, and points out the way in which they may escape or cure disease. Which do you prefer,—the medical friar or the modern Luther?

Every step in scientific investigation, every proposition which relates to the interest and happiness of man, every statement and appeal involving a valuable consideration, must be submitted to the scrutiny and judgment of individual reason; for each person has the right to form his own conclusions, and justify them by experience. Those claims which are only supported by empty assertion are doubtful. Misty theories vanish before the sun of truth. He who renders professional services cannot be successful, unless he be sustained by real merit.

1906. **An Extensive Medical Practice.** Without being egotistical, I may say that, probably, no other physician

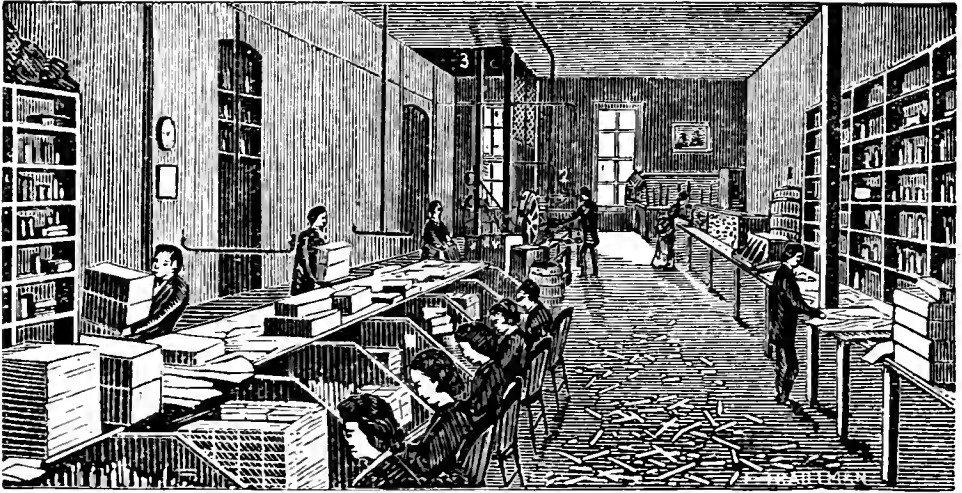
Fig. 243.

World's Dispensary.—One of the Storage Tank Rooms.

in any country is constantly treating so many cases of chronic diseases as myself. During my practice, I have expended many hundred thousands of dollars in advertising in American and foreign journals. In this manner, I have become extensively known as a specialist in the treatment of chronic diseases, and many thousand persons suffering from these affections have been led to consult me. Extensive observation and experience have naturally led to the discovery of many new and valuable remedies and improved surgical methods, which have enabled me to succeed in multitudes of cases where others have failed.

1907. Treating Patients through the medium of Correspondence. We can treat most chronic diseases as successfully without as with a personal consultation, as our vast experience enables us to correctly determine the malady from which the patient is suffering, by a history of the symptoms, and answers to the questions found in the concluding pages of this volume. We have not seen one person in five hundred whom we have cured.

1908. Some may suppose that a physician cannot obtain a sufficiently accurate idea of the condition of a patient through correspondence to enable him to treat the case successfully. But a large experience in this practice has proved the contrary to be true, for some of the most remarkable cures have been effected through the medium of correspondence. In most long-continued diseases, the patient has thought over his symptoms

Fig. 244.

World's Dispensary.—One of the Labeling and Wrapping Rooms.

hundreds of times. The location of every pain, whether acute or mild, constant or occasional, and the circumstances under which it occurs, have been carefully noted. He has observed whether he had a rush of blood to the head, was feverish or chilly, whether troubled with cold hands and feet, whether full of blood, or pale and bloodless; and he states these matters accurately and sensibly when writing to me, for he has a very good, if not a professional, knowledge of the relative importance of these symptoms. So in regard to digestion, he states what kinds of food agree with him, or whether he is troubled with excessive acidity or a flatulent condition of the stomach. He also informs us whether his tongue is coated or clean and healthy, and gives us many other particulars, by which we are enabled to gain a perfect understanding of the case. If his description be not sufficiently complete to enable us to obtain an unmistakable understanding of the case, he is requested to answer a list of important questions which are sent him. The people are far more intelligent in these matters than physicians are generally willing to admit. A patient is often confused while being personally examined by a physician, and gives imperfect or incorrect answers. After he has left the presence of the physician, he finds that he has failed to enumerate many of the most important symptoms. In consulting by letter, the patient is not embarrassed, states the exact symptoms, and carefully reads over the

Fig. 245.

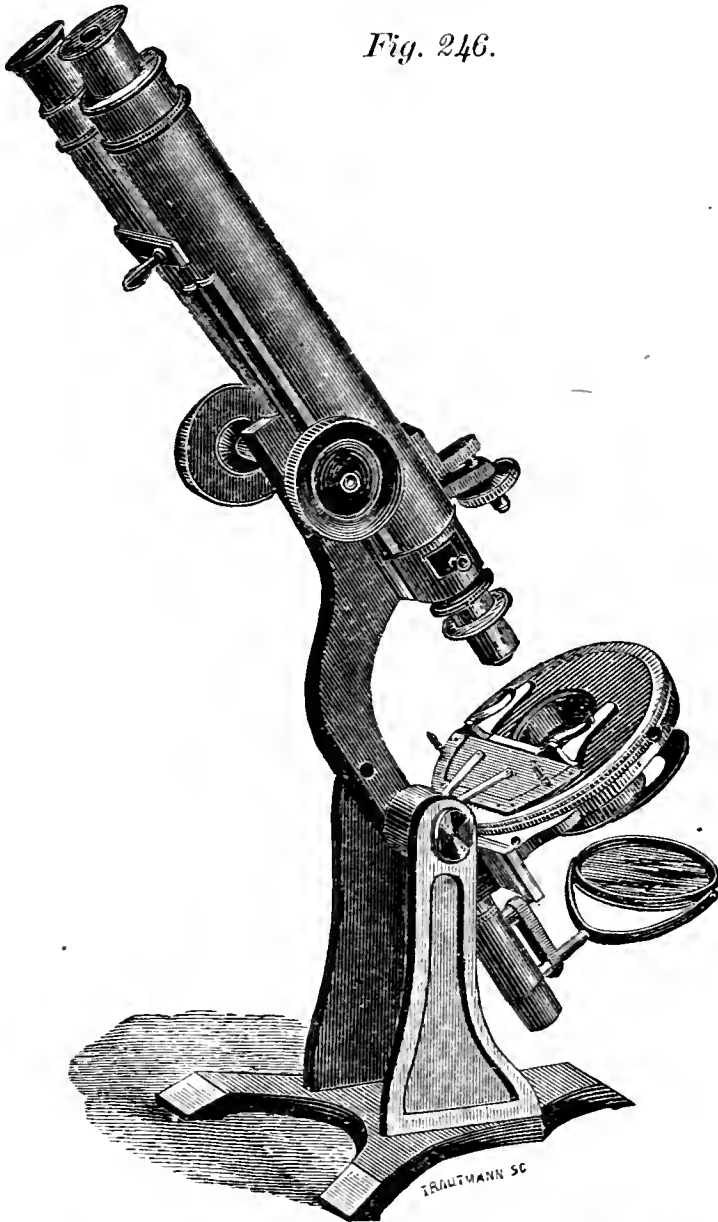
World's Dispensary.—Packing and Shipping Room.

letter to see if it is a complete and accurate description of his sufferings. In this way he conveys a much better idea of the case than if present in person, and subjected to the most thorough questioning and "cross-examination." The timid lady and nervous young man write just as they feel; and one important reason why we have had such superior success in treating intricate and delicate diseases, is because we have obtained such true and natural statements of the cases from these letters, many of which are perfect pen-pictures of disease. As bank-tellers and cashiers, who daily handle large quantities of currency, can unmistakably detect spurious money, by a glance at the engraving or a touch of the paper, so the experienced physician, by his great familiarity with disease, becomes equally skilled in detecting the nature and extent of a chronic malady from a written description of its symptoms.

1909. **Urinary Signs.** A careful microscopical examination and chemical analysis of the urine is a valuable aid in determining the nature of many chronic diseases, particularly those of the nervous system, blood, liver, kidneys, bladder, prostate gland, and generative organs. This important fact is not overlooked at the World's Dispensary, where an experienced chemist is employed to make such examinations and report the result to the attendant physicians. Medical authors, professors, and practitioners of all schools, admit and even insist upon the

importance of such examinations in diagnosing diseases. Many practitioners neglect to take advantage of this invaluable aid, while many others fear that if they attach much importance to

Fig. 246.



The Binocular Microscope used at the World's Dispensary.

such examinations they will be ranked with "uroscopian" or "water doctors"—a class of enthusiasts who claim to correctly diagnose every disease by an examination of the urine. Persons consulting us, and wishing to avail themselves of the advantages afforded by these examinations, can send small vials of their urine

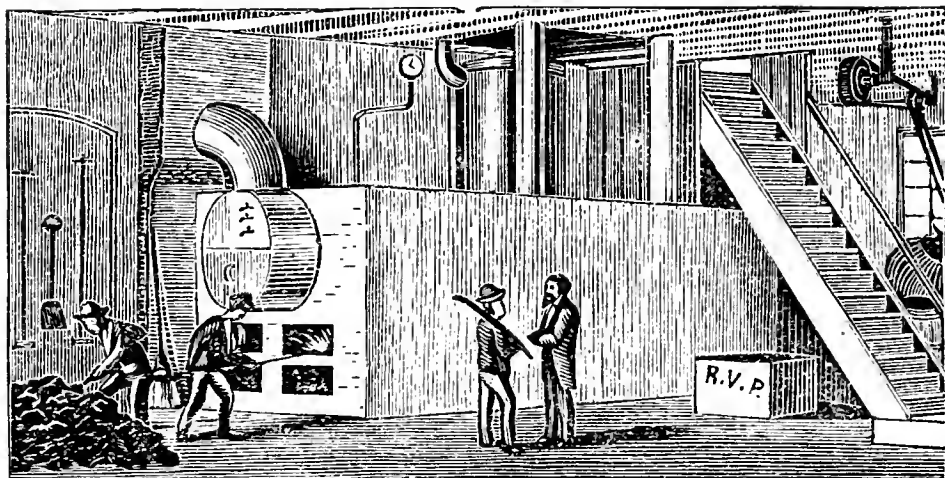
Fig. 247.

World's Dispensary.—Stock of Empty Bottles.

by mail. For this purpose about two ounces of that first passed after rising in the morning should be sent to me. It may be safely sent by mail if the vial be carefully packed in sawdust, bran, or paper, and inclosed in a light, wooden case, which may be made by boring out a small pine or other light wood stick, the end being tightly corked after the vial is placed therein. If packed in this way the liquid cannot escape from the case and soil the mail matter, should the vial be broken in transit, as the sawdust, bran, or paper, will absorb it. Unless it be thus carefully packed it should not be sent by mail, but may be sent by express, packed in an ordinary box. If sent by express all charges must be prepaid. A complete history of the case, including the age and sex of the patient, must accompany the sample, or it will receive no attention. By thus directing the examination into the channels indicated, we save much valuable time, and a lengthy series of experiments is avoided. As we are daily receiving numerous vials of urine, to prevent confusion, every sample should be labeled with the name of the patient who sends it.

1910. There is a natural, definite proportion of the component elements of every solid and fluid of the human body. These proportions have been reduced to definite standards, a deviation from which bears evidence of disease. Thus, there being a fixed standard in the normal proportion of the elements

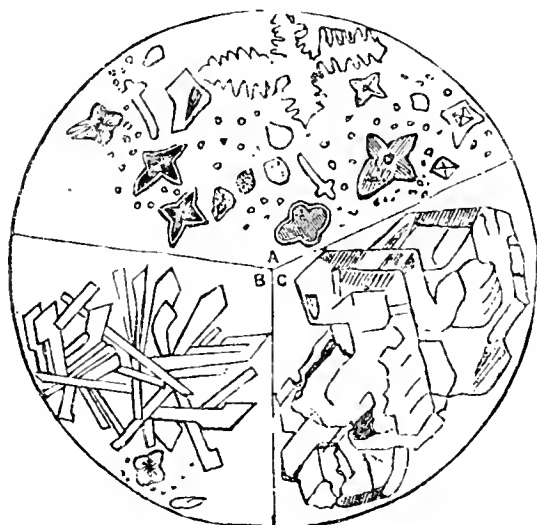
Fig. 248.



World's Dispensary.—Boiler Room.

of the blood, any deviation from it, as in anæmia, leucocythæmia, etc., indicates disease. So also the standard proportion of the urinary elements being known, any considerable change,

Fig. 249.



either in the quality or quantity of its parts, bears unmistakable evidence of disease.

1911. The invention of the microscope has provided increased facilities for detecting diseases by examinations of the urine. By the aid of this wonderful instrument we are enabled to discover with absolute certainty the various urinary deposits characteristic of different maladies; for example, in Fig. 249, A represents the *residue* of normal human urine, as seen under the microscope. In division B, is represented *oxalate of urea*. An excess of this element indicates indigestion, and is also characteristic of a plethoric or full habit of body. Nitrate of urea is represented in division C. A deficiency of urea in the renal secretion is a certain indication of anæmia. The average quantity present

Fig. 250.

World's Dispensary.—Compositors' Room

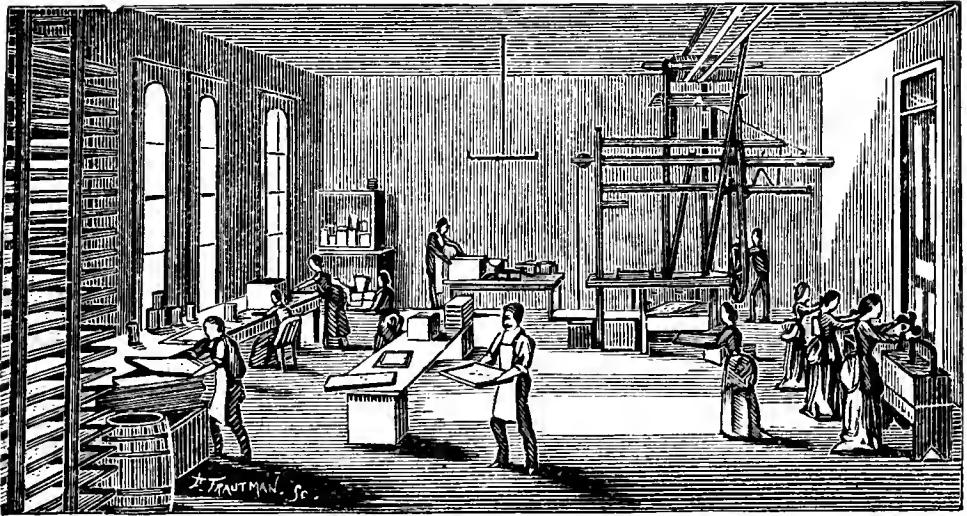
during health is 21.57 parts in 1,000. The microscopical examination of the urine, notwithstanding the distaste, and even contempt, which many physicians manifest for such investigations, is pursued at the World's Dispensary with inestimable benefits to our patients. It has revealed the existence of many serious affections, which, with all our other modes of investigation,

Fig. 251.

we had been unable to detect. It has also thrown light upon many obscure chronic diseases.

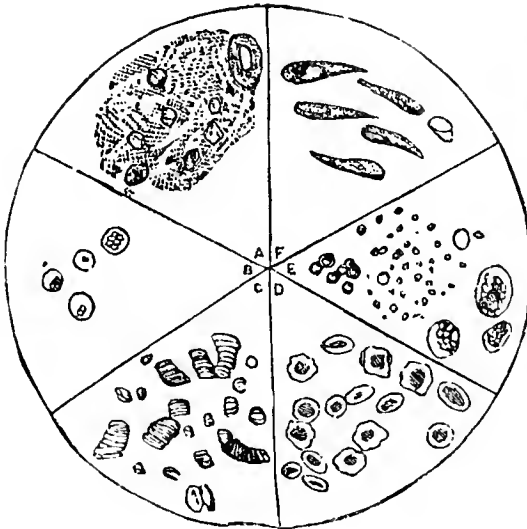
1912. I have already spoken of the marked changes effected in the urine by a derangement of the digestive functions. It is surprising to me that physicians generally pay so little attention to the urine when dyspepsia is suspected, since all admit that an

examination of that excretion furnishes unmistakable evidences of the nature and complications of that disease. In this way we are many times enabled to determine whether the indigestion is caused by congestion or functional disease of the liver or

Fig. 252.

World's Dispensary.—Room where Pellets are Manufactured.

kidneys, or by nervous debility. And when such cases are treated in accordance with the indications furnished, success almost invariably attends our practice. In Fig. 251 (divisions A and B) highly magnified urinary deposits, which indicate different degrees of impairment of the digestive functions are represented. The crystals seen in division c indicate the same

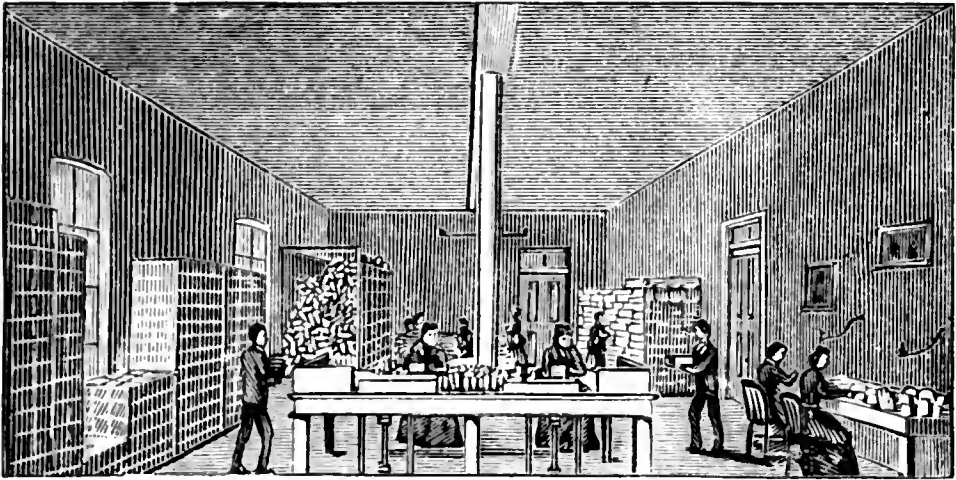
Fig. 253.

debility, accompanied by derangement of the mental faculties. Those seen in divisions D and E indicate still more aggravated forms of the same disorder.

1913. The various forms of gravel, Bright's disease of the kidneys, hematuria, inflammation of the kidneys and bladder, diabetes, and other functional and organic diseases of the urinary organs, effect characteristic

changes in the urine, thus enabling us to distinguish them with certainty. Some of the various microscopic appearances of the urinary deposits in diseases of the kidneys and bladder, are represented in Fig. 253. In division A, is represented pus and

Fig. 254.



World's Dispensary.—Room where Nasal Douches are Manufactured.

mucus, the presence of which indicates suppuration of the kidneys. In *b*, pus globules are alone represented. In the division marked *c* are shown blood corpuscles as they are arranged in blood drawn from a vein or artery. *d* represents the same separated, as they always are when present in the urine. In *e*, highly magnified oil globules are represented. If present in the urine,

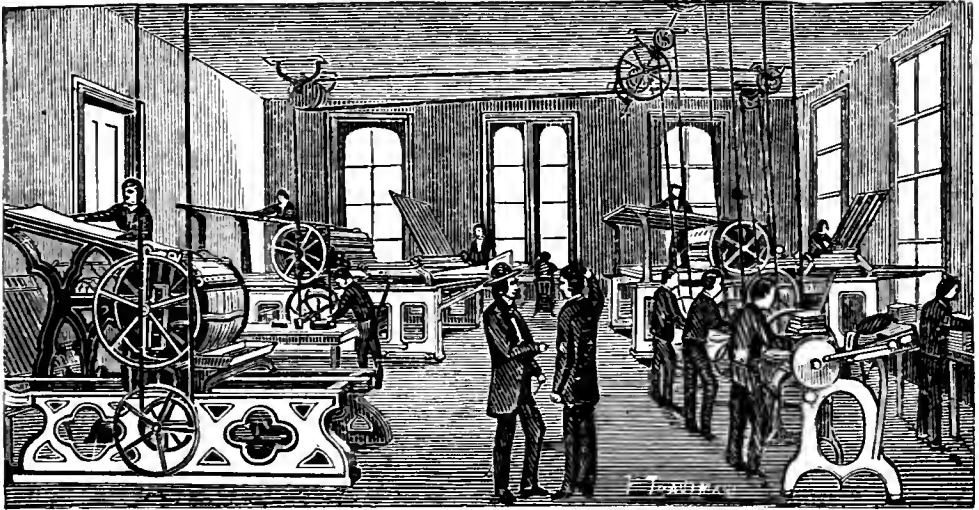
Fig. 255.



they indicate disease of the kidneys. In the division marked *e* are represented epithelial cells, the presence of which, in large numbers, is indicative of disease of the mucous lining of the urinary organs.

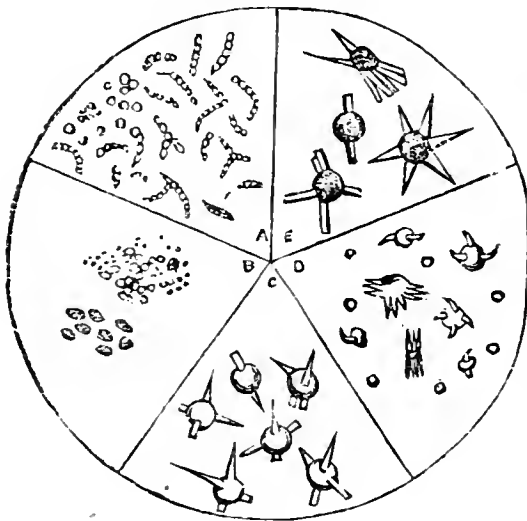
1914. Fig. 255 represents the microscopic appearance of phosphates in the urine. By attaching the *camera lucida* to the microscope, we can throw an image of these

urinary deposits upon paper. By the art of the engraver this image may be faithfully traced, and thus we are enabled to produce an accurate representation of them. Some of the beautiful crystalline deposits shown in Fig. 255 represent less than a millionth part of a grain, yet their forms are delineated with

Fig. 256.

World's Dispensary.—Printing Department.

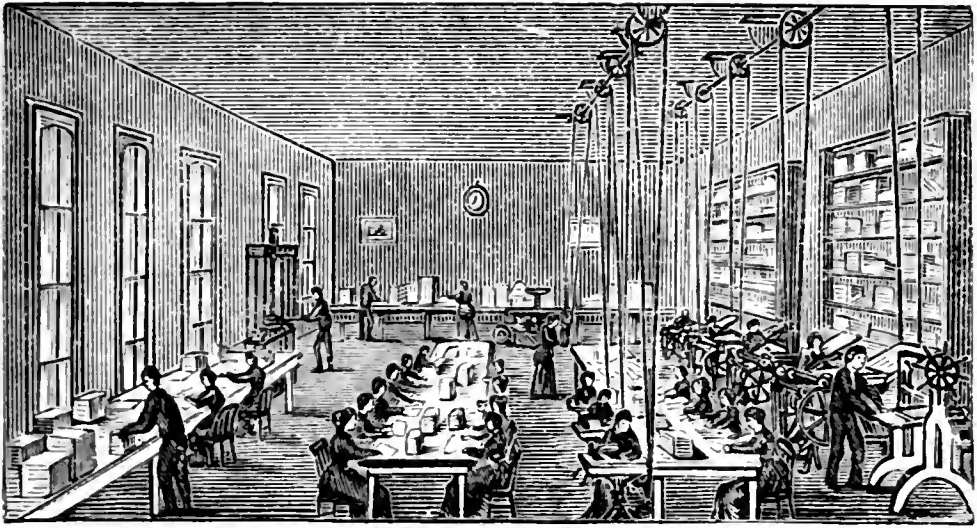
geometrical precision. In division A are represented urinary crystals, which indicate an irritable state of the nervous system. The crystals shown in division B are of the same character as the preceding, but bear evidence of greater mental debility. In division C are represented crystalline deposits indicating malassimilation of food and a tendency to hypochondria. Division D contains

Fig. 257.

a representation of the mixed phosphates. They are indicative of severe diseases, attended by hypochondria and general nervous prostration.

1915. Fig. 257 represents the microscopic appearance of mixed urinary deposits. In division A are represented the mixed urates as they appear during idiopathic fevers, as intermittent, remittent, etc. When appearing as seen in division B, a

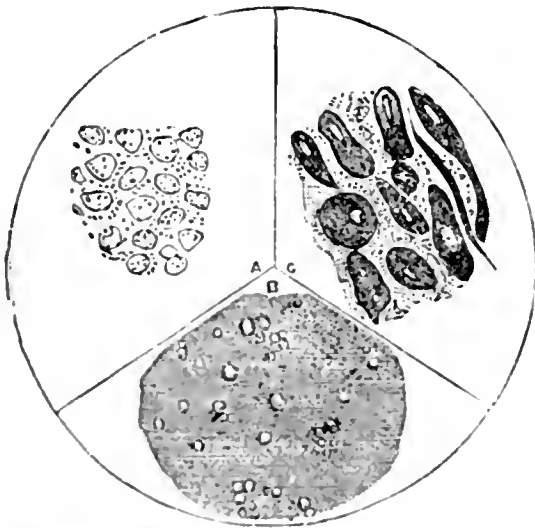
less violent affection of the same character is indicated. Division C represents urate of ammonia, occasionally observed when there is a tendency towards albuminuria, or dropsy, resulting from granular degeneration of the kidneys. In division D is

Fig. 258.

World's Dispensary.—Pamphlet Binding Department.

represented urate of soda, which is present in the urine of persons suffering from gout. The crystals shown in division *e* consist of the same salt.

1916. In division *A*, Fig. 259, is represented the microscopic appearance of purulent matter in the urine. The absorption of pus from abscesses in different parts of the system, is frequently

Fig. 259.

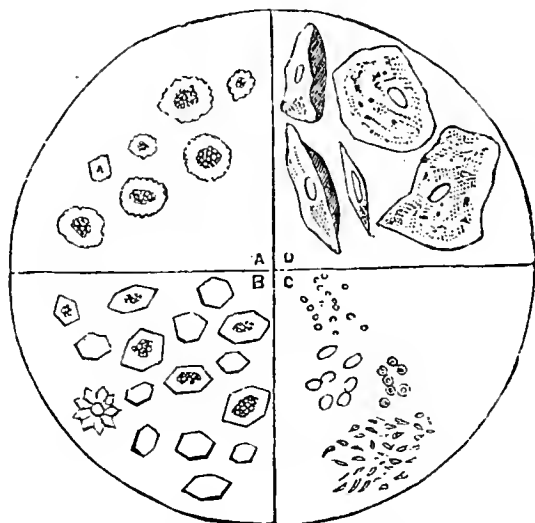
followed by the appearance of pus globules in the urine. When fat globules, represented in division *B*, are found in the urine, they indicate fatty degeneration. In division *C* are representations of the cells found in the urine of persons suffering from consumption and other scrofulous diseases.

1917. Fig. 260 represents the different forms

of cystine found in the urine of scrofulous persons. In division *A* it is represented as seen in an amorphous (non-crystallized) form, and in *B* as it appears in crystals. In division *C* is a representation of the deposits seen in the urine of those who

are greatly debilitated. In division D are seen epithelial cells mixed with mucus.

Fig. 260.



1918. In division A, Fig. 261, are represented the candated cells characteristic of hard cancer. The cells represented in division B are concentric, and characteristic of the soft varieties of cancer.

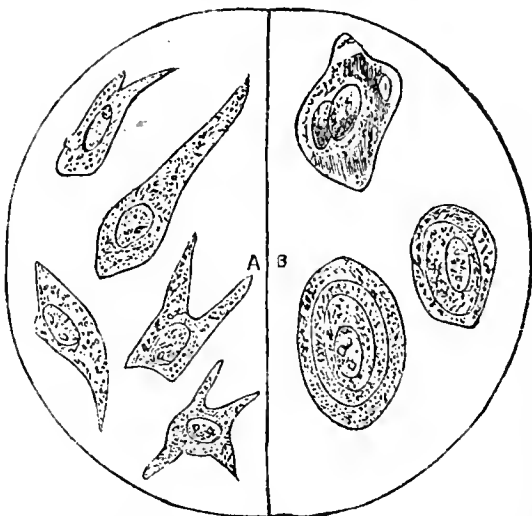
1919. Fig. 262 represents the appearance of spermatozoa as seen in urine. When present, they afford indisputable evidence of the escape of semen in the renal excretion.

(See article on Spermatorrhœa, page 795 of this volume.) I might add many other illustrations of urinary deposits and state their several indications, but a sufficient number have been introduced to show the importance and practical value of microscopical examinations of the urine in distinguishing obscure diseases.

1920. Although the microscope is of inestimable value, it does not entirely supersede other valuable instruments and chemical re-agents, in determining the constitntional changes in the renal excretion. By the urinometer we determine the specific gravity of the urine; by the use of

litmus its acid or alkaline reaction is ascertained; while various chemicals, when added to it, produce certain specific changes, according to the alterations which it has undergone. By the application of heat, or the addition of a few drops of nitric acid, the albumen, which is invariably present in Bright's disease of

Fig. 261.



the kidneys, is coagulated. By the employment of other re-agents we may determine the presence of sugar—a characteristic of diabetic urine. And thus I might enumerate many chemical tests by which the several conditions of the urine, characteristic of different diseases, may be ascertained with absolute certainty.

Fig. 262.



1921. Dr. Eberle, a distinguished allopathic author, thus writes: "Whatever may be the disease, the urine seldom fails in furnishing us with a clue to the principles upon which it is to be treated."

Dr. Braithwaite also says: "We can arrive at a more accurate knowledge respecting the nature of diseases from examining the urine than from any other symptom."

Golding Bird, whose writings are regarded as sound and practical by the most learned of the medical profession, says: "The examination of the urine in disease is now regarded as one of the most important aids in diagnosis, and which it would be alike injurious to the welfare of the patient as to the credit of the practitioner to avoid."

The eminent Dr. F. Simon writes as follows: "From the physical and chemical state of the urine, the attentive and observing physician may obtain a great quantity of information for ascertaining and establishing a diagnosis. More than all other signs, the correct examination of the sediment is of importance to the physician. * * *

"For the medical man it is the compass which guides him in the unlimited chaos of disease and its treatment; for the patient it is the thermometer of his condition, the premonitory indication of the decrease or aggravation of his malady; and for the healthy man it is the regulator of his diet and of his life.

"Every one is aware of the variations of the barometer, and we know that the fluctuations of the column of mercury are closely associated with the variable conditions of the atmosphere; so, to the practiced observer, variations of the urine, as

well as the elements composing it, point out with certainty the changes in health and the condition of the organs."

1922. While we recognize the importance of examining the urine as an aid in distinguishing diseases, and have made this old German method of diagnosis a special study, yet we do not claim that *all* diseases can be unmistakably distinguished by such examinations *alone*. We take a conservative position, and have no confidence in that class of ignorant fanatics whose pet "hobby" is "uroscopy." From every person who solicits our professional services we require answers to the questions hereinafter given, that we may know the age, sex, vocation, etc., as well as the prominent symptoms manifested.

1923. **Consultations by Letter.** Persons desiring to consult me, will please answer, as briefly as possible, such of the following questions as appertain to their respective cases. It will not be necessary to repeat the questions, but only to number the answers to correspond with the numbers prefixed to the different questions, and give the number of the group to which they belong.*

QUESTIONS TO INVALIDS.

Group 1.—1. What is your name? 2. What is the name of your post-office? 3. In what County and State do you reside? 4. Where is your nearest express office?

Group 2.—1. What is your age? 2. What is the color of your hair and eyes? 3. What is your complexion? 4. What is your height? 5. What is your present weight? 6. What is your weight when in health? 7. Is your neck short, average length, or unusually long? 8. In what country were you born? 9. What is your occupation? 10. Have you been a hard worker? 11. Do you labor now?

Group 3.—1. Have your ancestors been long-lived? 2. Are your parents living? 3. If so, what are their ages? 4. Are they healthy? 5. If either or both be dead, of what did they die? 6. Is there any hereditary disease in the family? 7. Do you suspect temperamental incompatibility in your parents?

* For example, if you were answering the questions of Group 2, and desired to give the following description, you would write your answers thus:

Group 2.—1. Twenty-five. 2. Black hair and blue eyes. 3. Dark. 4. Five feet and seven inches. 5. One hundred and twenty. 6. About one hundred and forty. 7. Average. 8. United States. 9. Merchant. 10. Yes. 11. Very little.

If you do not fully comprehend this question, before attempting to answer it, read the article entitled "Transmission of Life," commencing on page 182 of this volume. Should you not then be able to answer it satisfactorily, describe the personal appearance of each of your parents. 8. If you have lost near relatives, of what did they die? 9. Have you any brothers or sisters, and if so, are they healthy?

Group 4.—1. How long have you been out of health? 2. What do you think was the cause of your disease? 3. From what particular symptom do you suffer most?

Group 5.—1. Do you experience fever, chills, or night-sweats? 2. How many times does your pulse beat per minute when quiet in the morning, and how many times in the evening? 3. Do you have cold feet and hands? 4. Does your heart at times beat excitedly and more strongly than usual? 5. Are its pulsations irregular, fluttering, or weak? 6. Are you *plethoric* (full of blood) or *anæmic* (bloodless and pale)?

Group 6.—1. Is your skin soft and moist, or rough and dry? 2. Is it clear, yellow, or in any way discolored? 3. Is the white of your eyes unnaturally yellow? 4. Have you any eruptions, blotches, pimples, or sores, upon your skin? 5. If so, describe them.

Group 7.—1. Do you suffer from any severe trouble of mind? 2. If so, what is the cause? 3. Have you ever had convulsions (fits) or spasmodic affections of any kind? 4. Have you at any time been severely frightened, or suffered for a long time from great anxiety or fear? 5. Have you ever overtaken yourself with study or other severe mental labor? 6. Is your memory weakened? 7. Have you ever met with any severe disappointments which nearly or quite prostrated you? 8. Do you sleep well? 9. Do you have frightful or disagreeable dreams? 10. Do you often have amorous, or lascivious dreams? 11. Do you feel stupid and drowsy during the day? 12. Do you cry from trivial causes?

Group 8.—1. Have you ever met with any accident that caused sickness, lameness, or severe pain? 2. If so, what? 3. Was it followed by any deformity? 4. Have you any swellings or tumors? 5. If so, where are they located and how long have you had them? 6. Have you hernia (rupture), swellings

or enlargements in the groin, thigh, abdomen (belly), or elsewhere? 7. If so, do they disappear when you lie down? 8. Do they protrude more when you cough, sneeze, or strain? 9. Do you feel strong, or weak? 10. How far can you walk without experiencing fatigue? 11. When you run is there an oppressed feeling in your lungs? 12. Is your flesh soft and flabby, or firm? 13. Do you enjoy exercise, or do you avoid it as much as possible?

Group 9.—1. Are you regular in all your habits? 2. Do you retire at night and rise in the morning at regular hours? 3. Do you drink strong tea or coffee? 4. Do you use opium? 5. Do you smoke, chew, dip, or snuff tobacco? 6. Do you use alcoholic or other stimulants? 7. Do you eat freely of rich pastries, pickles, or fat pork? 8. Do you eat late suppers? 9. Do you think you have injured yourself by indulging in any bad habit? 10. If so, what habit?

Group 10.—1. Do you suffer from pain in your head? 2. If so, what is the character of the pain? 3. Is it dull and heavy, or sharp and lancinating? 4. Is it in the front, back, or sides, of the head, on one or both sides, in the face, or just over or in the eyes? 5. Do you have dizzy or oppressed sensations? 6. Do you ever feel as if there was a rush of blood to your head? 7. Do you suspect that you have catarrh? 8. If so, state if there is any obstruction in the nasal passages or a discharge falling into the throat. 9. Is the discharge profuse, watery and acrid, or thick and tenacious? 10. State if it is purulent (mattery), bloody, putrid, or offensive. 11. Are the nasal passages dry? 12. Are your eyes weak or inflamed? 13. Do you experience ringing in the ears or deafness? 14. Is there any ulceration in the ears, roof of the mouth, or throat? 15. Are there scales or lumps of hardened matter discharged from the ulcers? 16. Has your voice a "nasal twang"? 17. Is your breath offensive, and your sense of smell or taste impaired?

Group 11.—1. Is your sight good? 2. Are your eyes weak or inflamed? 3. Do you imagine that there are specks, sparks, streaks, or flashes of light, mists, or clouds, floating before you? 4. Can you see best in a bright light or when it is dim, as at twilight? 5. Are your eyes frequently full of tears? 6. If so, do the tears overflow the lower lids and trickle down

your cheeks? 7. Are both eyes thus affected? 8. Do your eyelids become gummed or glued together during sleep?

Group 12.—1. Can you hear well? 2. Do you have any discharge from the ears? 3. Do you experience ringing or roaring sounds?

Group 13.—1. Is your tongue coated? 2. If so, is it white, yellow, or of a dirty brown color? 3. Is it coated all over the upper surface, or only in patches? 4. Are there deep furrows, wrinkles, red points or small elevations like pimples, on the upper surface of the tongue? 5. Is the mouth unusually dry? 6. Any unpleasant taste? 7. Are any of your teeth decayed? 8. Is your breath offensive?

Group 14.—1. Are your bowels loose, costive, or regular? 2. How often do they move? 3. Have you any bloating of the abdomen (belly) or any soreness noticeable in that region? 4. Have you been in the habit of taking cathartics? 5. Do you suffer from piles? 6. If so, are they external, internal, blind, bleeding, or itching? 7. Have you anal fistula? If not able to answer the last question, read the symptoms of that affection found on page 606.

Group 15.—1. Does your food digest well? 2. Do you have sour, watery, or windy eructations ("risings") from the stomach? 3. Do you have any pain, "gnawing," burning, soreness, feeling of emptiness, or trembling, in the region of the stomach? 4. Are you frequently troubled with nausea, or a distressing sensation of fullness and heaviness in the stomach? 5. What kinds of food distress you most? 6. Are you low-spirited and hypochondriacal (subject to the "blues")?

Group 16.—1. Are you suffering from any affection of the throat? 2. Is your throat sore? 3. Is there an enlargement of the tonsils, or any tickling or choking sensation in the throat? 4. Are you troubled with hoarseness, weakness or suppression of the voice?

Group 17.—1. Do you take cold easily? 2. If so, where does it affect you most? 3. Have you a cough? 4. If so, does it trouble you most at night, soon after retiring, or in the morning? 5. If you suspect that your lungs are affected, state how much you measure around your chest when your lungs are filled with air, and also what is the measure after the air is exhaled.

6. Do you feel any weakness, tenderness, or pain, in the chest? 7. Do you expectorate ("raise") much? 8. If so, does the expectorated matter float upon or sink in water? 9. Is it streaked with blood? 10. Do you ever have attacks of bleeding from the lungs? 11. Are your feet and ankles swollen? 12. Do you occasionally have chills? 13. Do you have night-sweats? 14. Are you "round-shouldered," and inclined to stoop when walking or sitting? 15. Did you ever have typhoid, bilious, remittent, or intermittent fever, fever and ague, or chills and fever?

Group 18.—1. Have you weakness, soreness, lameness, or pain in the lower part of your back? 2. Do you have any pain or soreness in the region of the bladder or lower extremity of the bowels? 3. Do you have a desire to urinate often? 4. If so, how often, and how much urine is voided at a time? 5. Do you suffer pain or a smarting sensation in passing it? 6. Does it contain any sediment? 7. If so, is the sediment white, red, brown, or yellow? 8. Does it settle to the bottom of the vessel and feel gritty? 9. Does pus (matter), blood, or gravel, pass with the urine? 10. Is the urine of a white and milky, red, yellow, or natural color? 11. Have you ever had any venereal disease (gonorrhœa or syphilis)? 12. If so, how did it affect you? 13. Did you have any sores upon your genital organs? 14. If so, how many and where were they situated? 15. Do you still have any perceptible symptoms resulting from that infection? 16. Do you have any unnatural discharge from the genital organs? 17. Do you experience any burning pain or scalding sensation on passing the urine? 18. Is there any obstruction to the flow of urine? 19. Does the urine sometimes suddenly stop flowing? 20. If so, will it flow freely if you lie on your side or back and then try to void it?

Group 19.—1. Do you suffer any pain, weakness, soreness, numbness, or other disagreeable sensations, in any part of your body? 2. If so, where, and what is its character?

Group 20.—1. Are you single or married? 2. If married, state how long you have been married, and if your companion is healthy. 3. Have you children? 4. If so, are they strong and healthy? 5. If you have no children, do you desire them? 6. Is the barrenness supposed to be the fault of the husband or wife,

or both? 7. If children be desired, describe your own and your partner's eyes, hair, complexion, height, weight, and age? 8. Does the general outline of the forehead of one differ greatly from that of the other? 9. Read the articles in this volume on Barrenness, or Sterility, and Impotency, and then give me any information that you may think important in enabling me to determine the cause of your unfruitfulness.

Group 21.—1. If a male, state if you have phimosis (see page 816)? 2. Have you any enlargement, or tumor, like hydrocele (see page 817)? 3. Do you think you have varicocele (see page 820)? 4. Do you have seminal emissions at night? 5. If so, how often? 6. Do you have a discharge of semen when at stool? 7. Does the semen pass off with the urine? 8. Are these emissions the result of masturbation (self-abuse), or excessive sexual intercourse, or both? 9. Is the erectile power enfeebled, or wholly lost, or are the erections perfect? 10. If married, is the semen prematurely discharged when you have sexual intercourse? 11. If married, state if you were troubled with emissions before you were married. 12. Are your testicles diminished in size, swollen, enlarged, painful and tender, or do they feel like a mass of earth-worms in the scrotum? 13. Have you a very strong desire for sexual intercourse, or is your amative passion weakened by disease? 14. Are you gloomy and despondent? 15. Are you nervous and easily irritated?

Group 22.—1. If a female, are you troubled with leucorrhœa (whites)? 2. If thus afflicted, state what is the consistency, color, etc., of the discharge. 3. Do you have a "bearing-down" or dragging sensation in the region of the womb? 4. If married, state if sexual intercourse gives you pain. 5. Is there any apathy or lack of amative excitability on your part during sexual intercourse? 6. Are you troubled with excessive amative desires? 7. Are your menses ("monthly courses") regular in their appearance? 8. How often do they occur, and how long does the discharge continue? 9. Do you suffer pain before, during, or after, the flow, and is the discharge slight, profuse, or moderate in quantity? 10. Do you suffer from irritation, smarting, soreness, or itching, of the vagina or external genital parts? 11. If you have children, state how many, also if they are healthy, and give the age of the youngest. 12. Have you had any

miscarriages? 13. If so, how many, and at what period of pregnancy did each occur, and was it due to accidental, medical, or surgical causes? 14. Are you pregnant? 15. If so, how long have you been pregnant? 16. Are you nursing a child? 17. Did you recover rapidly after confinement? 18. Do you feel any tenderness on pressing firmly over the womb? 19. Have you practiced self-abuse or indulged excessively in sexual intercourse?

Group 23.—1. Is the locality in which you reside considered healthy? 2. Do chills and fever ("fever and ague") ever prevail in your neighborhood? 3. Have you ever taken much calomel or been salivated? 4. If your disease is one for the cure of which my proprietary medicines are recommended, state if you have employed them; if so, which ones, and how much have you taken of each? 5. Have you a complete volume of "THE PEOPLE'S COMMON SENSE MEDICAL ADVISER"? I ask this question, as it is a matter of great convenience to me, when I can refer to certain passages in that work as answers to your questions, thereby giving you the requisite information.

1924. Many questions in the preceding list may appear, to the casual reader, unimportant or trifling, yet they are important in determining the nature and extent of disease. From answers to such questions as "What is the color of your hair, eyes, and complexion?" I must form my opinion of your *temperament*, or constitutional organization. From your answers to other questions I must determine the peculiarities and perhaps complications of your disease. If the answers be accurate, I can judge as correctly of the nature and extent of a disease as if permitted to make the most careful personal examination.

1925. These questions are only *suggestive*. In writing, mention only those symptoms which you experience. Do not attempt to answer a group of questions by simply saying "yes" or "no," but state your symptoms *clearly* and *fully*; and while condensing and making the history of your case as brief as is consistent with clearness, you are not limited to answering the above questions, but may make any further remarks which you think will aid us in determining your disease. To each group of answers prefix a number corresponding to that of the group containing the questions answered. If you have a complete volume of "The People's Medical Adviser," and find therein an accurate

description of your disease, state the page and paragraph where it appears. If you do this, it will be unnecessary to state your symptoms. If convenient, it is well to inclose your photograph with the answers to questions, for although by no means important in all cases, yet useful information is sometimes gained therefrom.

1926. **Reliable Medicines.** Next in importance to a correct understanding of the patient's disease, is the possession of reliable remedies for its treatment. Many of the medicines employed by physicians engaged in general practice are prepared from old drugs that have lost all their medicinal virtues, and, hence, are utterly worthless and ineffectual. Many vegetable extracts are inert, because the plants from which they are produced were not gathered at the proper time. To give the reader an idea of the great care which we exercise in the selection and preparation of our medicines, he is requested to read page 309 of this volume.

We are often asked why we do not send prescriptions instead of prepared medicines, to our patients. The reason is obvious. We want to know exactly what our patients are taking. We cannot always rely upon the manufacturers of extracts too implicitly. While the druggist may be honorable and careful in compounding a prescription, he may purchase the extracts from a dishonest pharmacist, and the medicine compounded from them will not produce the desired result. Even druggists are not always reliable, as the following extract from the *Pull Mall Gazette* quite conclusively shows: "Some very disagreeable revelations as to the manner in which physicians' prescriptions are made up are contained in a report by Mr. Allen, the borough analyst, at Sheffield, giving the result of an experiment lately tried with the view of testing the accuracy and honesty of druggists. Various prescriptions, each including a full dose of some costly remedy capable of ready and accurate estimation in a mixture, were presented to certain druggists. A series of three samples, in which 120 grains of iodide of potassium were prescribed, were found on analysis to contain 122, 120, and 76 grains respectively. Of three samples which should have contained 16 grains of sulphate of quinine, one contained only $9\frac{1}{2}$ grains. Another sample, which should have contained 40 grains of sulphate of

quinine, had but 30 grains. Of twelve samples of glycerine only five were pure and one of the standard strength. Three samples of citric acid were found to contain a minute trace of lead. In short, the result of the experiment was such as to give just ground for apprehension that druggists are not more troubled with consciences than grocers, and that the effect of the poisons retailed by the latter is often enhanced instead of removed, by the adulterated antidotes dispensed by the former." And we are satisfied from observation that American druggists, although as a class as honorable as any other, are not always worthy of our confidence. Many of our patients reside at a distance, and would patronize druggists with whom we are not personally acquainted. We, therefore, prefer to dispense to our patients such medicines as we *know* are carefully compounded, and not subject them to the uncertain influence of medicines of doubtful purity and excellence.

1927. **Fees for Consultation.** It requires considerable time to read a letter detailing symptoms, and generally much longer to carefully consider, weigh, and interpret, these signs of disease. Then a complete record of the case must be made for future reference, and a carefully-written reply must be sent. In consideration of these facts, every reasonable person will see the propriety of advancing a slight compensation; yet the small fee expected is required more as an evidence of the patient's confidence and good faith in consulting us than as a remuneration for services rendered. Those who have not sufficient confidence in us to advance the small sum of *one dollar*, the fee required for simple consultation by letter, must not expect us to reply to their communications. We cannot spend our time in reading and writing letters merely to satisfy the idle curiosity of any person. If the consultation by letter involves a microscopical and chemical examination of urine, the fee will be *three dollars*, and must be remitted in advance, or the communication will receive no attention.

1928. I am frequently consulted by persons contemplating matrimony, and those already married, who desire to have me examine the temperaments of the two parties, as represented in their photographs, and give my opinion of their adaptation, or compatability. To avoid extra correspondence, I will here say that a fee of *five dollars* must accompany each letter requesting

such information. The photographs furnished for this purpose should be quarter or profile views. They should also be accompanied with a description of each party, the color of eyes, hair, complexion, etc. (See page 182.)

1929. **Our Fees for Office Consultations** vary from *three* to *five dollars*, according to the time occupied and the nature of the necessary examinations.

1930. **Our Terms for Treatment** require the payment of monthly fees (in advance), which entitle the patient to medicines specially prepared for and adapted to his or her particular case, and to all necessary attention and advice. Our fees for treatment are moderate, varying according to the nature and requirements of each particular case, and will be made known at the time of consultation. While we always endeavor to make them within the pecuniary means of the afflicted, yet we cannot afford nor do we purpose to gratuitously treat persons who are abundantly able to pay a fair compensation for our services. Our vocation is too honorable and our time too precious to barter our services for the mere pittance *modestly* (!) accepted by quacks. Is not your health of more intrinsic value than your lands or bonds? Yet if these tangible possessions are endangered,—if some mercenary rogue attempts to wrest them from you,—you employ the most talented lawyer in your city or State, and willingly pay him hundreds or even thousands of dollars. But when that insidious foe, Disease, steals your health—your dearest earthly possession—you look questioningly at the physician who has spent years and a fortune to gain the very knowledge which is necessary to successfully combat your enemy, when he demands only one-tenth of the sum paid to the lawyer, and even that is sometimes grudgingly withheld and inferior talent employed. Truly, human nature is a bundle of inconsistencies. Often one-third of the money expended on the funeral equipage would have secured the requisite medical skill which would have restored the victim to perfect health. If men would pay more to the physician, thereby securing the services of one who is skillful and experienced, they would have to pay less to the undertaker.

1931. **Why Our Fees are Required in Advance.** We receive applications from strangers residing in all parts of America and even foreign countries, and it is not

reasonable to suppose that we could dispense credit so indiscriminately. It would not be a correct business transaction for a merchant to send a barrel of sugar or a roll of cloth to a stranger living hundreds of miles away, to be paid for when used. My knowledge and medicines constitute my capital in business, and an order upon that capital should be accompanied by an equivalent. Some applicants refer me to their neighbors for a testimonial of their integrity. I cannot spare the time or employ assistants to make such inquiries, for the sake of trusting any one. Should credit be thus indiscriminately given, there would necessarily be losses, and, to compensate for these, and the extra expense incurred by the employment of assistants, our fees would have to be much larger, thereby imposing the burden upon those who *do* pay. Instead of following this method of procedure, we place professional services within the reach of all, so that a greater number may be benefited. Many invalids say that they have paid large sums of money to physicians for treatment, without obtaining relief. Unfortunately, our land is cursed with quacks and unprincipled practitioners, who seek no one's good but their own, and it is a defect in our laws that such swindlers are permitted to go unpunished. Not so reprehensible is the family physician who fails, because his limited and varied practice does not permit him to become proficient in treating chronic diseases.

1932. Two diplomas, received from leading medical colleges, certify to my attainments in Medicine and Surgery. An extensive experience, affording unusual opportunities for the investigation of disease and the adaptation of medicines, has enabled me to succeed in innumerable instances where eminent practitioners have failed.

The following beautiful sentiment of Hood truthfully expresses the sacredness of the physician's trust:

"Above all price of wealth
The body's jewel. Not for minds or hands profane
To tamper with in practice vain.
Like to a woman's virtue is man's health;
A heavenly gift within a holy shrine!
To be approached and touched with serious fear,
By hands made pure and hearts of faith severe,
E'en as the priesthood of the One Divine."

I am in regular practice, responsible for what I say and do, and cordially invite those who want further evidence of my success in curing chronic diseases to come to the World's Dispensary and satisfy themselves of the truthfulness of my statements.

1933. Some applicants offer to deposit a certain amount of money with a third party, to be paid to us when they are cured. Even if the science of medicine were exact, like chemistry or mathematics, we could not in justice to ourselves treat patients upon this condition. We could never know whether our medicines were taken as prescribed or not, and even after the patient was completely restored to health he might apply all sorts of imprudent tests, believing that a cure should withstand every thing. Besides, we could not guard against the wiles of the applicant and his money-holder, who might feel disposed to defraud us. We choose to avoid all difficulties of this character, believing that the "laborer is worthy of his hire." When the physician exercises his skill in diagnosing disease and adapting remedies, and furnishes medicines, there should be no equivocation concerning his fee.

1934. We are warranted in saying that our responsibility, and reputation for fair dealing, are known by many of the principal mercantile houses, as well as by all prominent American editors. We also refer to our present and former patients, one or more of whom may be found in almost every hamlet of America. To all who are under our treatment, we devote our highest energies and skill, fully realizing that an untold blessing is conferred upon each person whom we cure, and that such cures insure the permanency of our business. On the contrary, we realize how unfortunate it is for us to fail in restoring to health any person whom we have encouraged to hope for relief. We are careful, therefore, not to assume the treatment of incurable cases, except when desired to do so for the purpose of mitigating suffering or prolonging life; for we never wish to encourage false hopes of recovery.

1935. **Invalids must be Patient.** Chronic diseases can only be cured gradually. As a large structure, the erection of which cost years of labor, may be *hastily* torn down, but will require the same length of time to rebuild it,—to replace

brick upon brick,—so the physical system may become shattered by disease, and will require the slow and steady process of medication to rebuild it, cell by cell, and tissue upon tissue, until the structure is again complete.

1936. It may happen that the patient has an attack of some acute disease shortly after beginning to use my remedies. He is inclined to attribute this disease (which is the result of undue exposure) to my medicines, and may find dishonorable physicians who will encourage and confirm him in this erroneous belief. It may happen that the patient will feel a little worse for a few days after beginning to use my medicines. When your foot is “asleep,” the circulation in that member is stopped, and it has no feeling. If you try to restore the lost sensibilities, the blood begins to circulate and you experience many peculiar and disagreeable sensations: so the unpleasant symptoms which often follow the use of efficacious medicines are due to a sudden awakening of the vital functions. Persons who commence to use my remedies should *have* “*a mind of their own*” and a *determination to persevere*, and give my medicines a fair trial, and not allow their minds to be influenced by events which would occur under any circumstances, or permit themselves to be prejudiced by those who know nothing of me, or the success attending my practice.

1937. **Visiting Patients who Reside at a Distance.** I am frequently asked to visit patients residing hundreds of miles away, so that I may personally examine their cases and consult with the attendant physician, or perform difficult surgical operations. As my time is valuable and very fully occupied, I cannot always comply with such requests. Having a larger number of physicians on my Medical and Surgical Staff than formerly, I shall (when not able to attend in person) detail a competent member of the Faculty of this institution to respond to such demands upon our skill.

1938. **To Physicians** wishing to consult me in intricate cases of chronic diseases under their care, I desire to say that I shall, as formerly, take pleasure in responding to their solicitations. Every letter requesting such advice must contain a complete history of the case to be examined, and also a proper remuneration for my services. I cannot comply with the

numerous requests which I receive from members of the medical profession to aid them by my suggestions in difficult cases, without a fair compensation for the time I would spend in attending to their wants. I have all the necessary instruments and appliances required in executing the most difficult surgical operations, and as I have had much experience in this department, I am always ready and able to assist physicians who do not practice operative surgery. In this age of railways and telegraphs, medical or surgical aid can be summoned from a distance and promptly obtained.

DEFORMITIES AND SURGICAL DISEASES.

1939. The treatment of Deformities and Surgical Affections constitutes a large branch of practice at the World's Dispensary. Few physicians engaged in general practice are willing to undertake the more difficult surgical operations. Besides, the general practitioner cannot afford to provide himself with the very large and expensive collection of instruments and appliances, which the surgeon must possess who is frequently called upon to perform the various operations incident to an extensive practice in the field of operative surgery. Hence, very many physicians send such cases as they do not wish to undertake to me, and in the aggregate they amount to a very large surgical practice. To treat, in this volume, of all the various surgical diseases and deformities which have been presented for my consideration and treatment, and explain the operations performed for their relief, would require many pages, and necessitate the enlargement of this work far beyond its present size. However valuable such information might be to the medical student, it would be of little practical interest to the general reader, and hence I have considered only a few of the surgical diseases and deformities, for the relief of which our operative skill is almost daily sought. I may at some future time, in a work written exclusively for the profession, embody a consideration of these subjects, and thereby acquaint them with some of the peculiarities of my practice. Among the surgical diseases and deformities which are most commonly submitted to our treatment, I may mention Cross-eyes, Everted and Re-inverted lids, Cataract (a disease of the crystalline lens, causing blindness), Obstruction of the Tear Duct, Nasal

Polypus, Fistula in Ano, Piles, Hernia (rupture), Strictures, Hydrocele (dropsy of the scrotum), Varicocele, Diseased Bones, Vesico-vaginal Fistula, Stone in the Bladder, and Ovarian and Uterine Tumors,—all of which have been considered in another

Fig. 263.



A Benign Tumor.

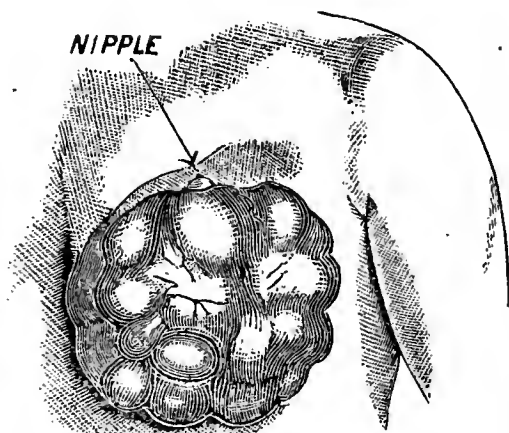
portion of this volume, and their proper treatment indicated.

1940. **Tumors.** Tumors may be divided into two general classes; *benign*, or mild, and *malignant*, or dangerous tumors. The former division embraces a great many varieties of morbid growths, which appear on different portions of the body, and may be subdivided into fibrous, glandular, cystic tumors, etc.

1941. Malignant tumors embrace all cancerous growths, of which there are several varieties. (See ¶ 844.) In many cases of benign tumors, particularly those affecting the glands, medical treatment, aided by electrolysis, will effect their removal. Also Goitre (enlarged neck), scrofulous, and many cystic tumors, will generally yield to such treatment. But in malignant, or cancerous tumors, the morbid growth must be immediately removed, as all delay lessens the patient's chances for recovery. The mode of treatment, therefore, which will most promptly accomplish the perfect removal of the tumor is the one which should be adopted. Tampering with malignant tumors, by the application of irritating medicines, should be avoided. I have removed a very large number of cancerous tumors by the use of the knife, and am well satisfied that by *cutting out* such morbid growths, *root and branch*, I have saved more

lives than I could by salve-and-poultice treatment. By administering an anæsthetic, the patient is rendered perfectly insensible

Fig. 264.



A Malignant Tumor.

to pain, and thereby much suffering is avoided. The treatment by caustics, salves, poultices, and all other agents which cause sloughing, is tedious and extremely painful, and does not so surely remove every part of the morbid growth. (See ¶ 861.)

Fig. 265.



Wry Neck.

The removal of some varieties of benign tumors also requires the use of the knife, while others can be more easily amputated by the use of the ligature or the *eccraseur*.

1942. Many varieties of tumors, as ovarian, uterine, cancerous, and dropsical, as well as those arising from diseased veins (varicocoele) and bones (fever-sores), have received attention in Part IV of this work.

My object in referring to these morbid growths in this appendix is to call the attention of the public to the increased facilities for treating them which the Invalids' Hotel will afford.

1943. **Wry Neck.** This deformity may be either congenital or acquired, and is due

Fig. 266.

to various causes. The head is drawn to one side and approaches the shoulder, as represented in Fig. 265. The inclination of the head may be due to either weakness or contraction of the muscles. Burns, scrofula, rheumatism, or lacerated wounds, are the commonest causes of this deformity. In rare cases it is due to the paralysis of the muscles of the neck or malformations of the spine. It is often caused by contractions of the cervical muscles.

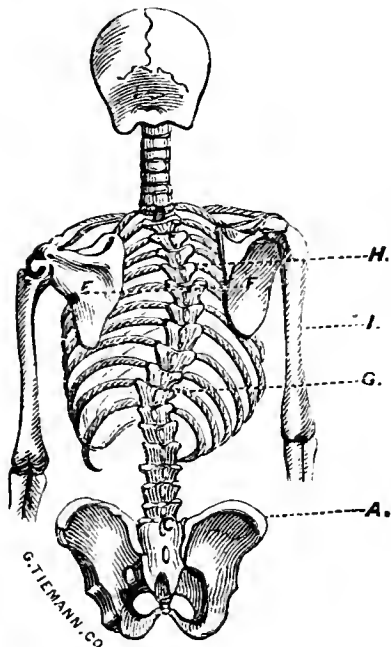


Brace for Wry Neck.

1944. **Treatment.** This will depend upon the *cause* of the deformity. In cases of spasmodic contraction, the deformity is transient, but the natural process may be hastened by appropriate hygienic and medical treatment. When due to muscular

paralysis, the use of the electric current is very beneficial. When the contraction is permanent, the most efficient means of correcting the deformity is the sub-cutaneous division of the contracted muscles or tendons. When the contraction is slight, a proper adjustment of the brace devised by Messrs. Tiemann & Co. (represented in Fig. 266) will correct it. In cases due to the weakness of the cervical muscles, it is very efficient in holding the head in its normal position until the system becomes so strengthened that the muscles regain their tonicity. Again, when the contracted muscles have been separated, it is necessary to devise some means of supporting the head while nature completes the operation by healing the severed tissues, and this brace

Fig. 267.



furnishes the desired support. To rectify the deformity by mechanical treatment alone, the application of strips of adhesive plaster and bands is more efficient. Whatever the mode of correcting the deformity, mechanical supports should always be used.

1945. **Lateral Curvature of the Spine** (*Crooked Back*).

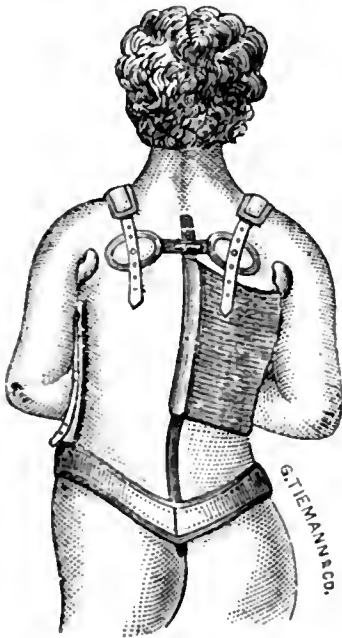
This deformity more frequently appears in anæmic persons, in whom the flexibility and elasticity of the muscles are weakened, than in those of a plethoric habit. It is generally incurred during youth, between the ages of twelve and eighteen. Persons of sedentary and indolent habits are

especially liable to this deformity; hence, girls are most frequently the victims. It is never seen in the natives of tropical countries, who habitually live in the open air, and seldom in the barbarous people of our northern clime. A distinguishable feature of "the noble red man" is his *erect* carriage. The *primary* curvature is generally toward the right side, as represented in Fig. 267. The ribs are thus forced into an unnatural position, and the vital organs contained in the cavity of the chest are compressed or displaced, thus distorting the form of the whole upper portion of the body.

1946. **Symptoms.** The first indication of lateral curvature of the spine is a marked projection of the right *scapula* (shoulder-blade). It is sometimes first observed by the dress-maker, or accidentally, as in bathing. The right shoulder is slightly elevated, while the left hip is depressed and projects backward. If not corrected while in its earlier stages, it will progress very rapidly and a second curvature will be developed.

1947. **Causes.** In rare instances, the lateral curvature of the spine is due to defects of some of the bones of the pelvis or limbs, the curvature being nature's method of adjusting the upper portion of the body to the center of gravity. Cases are recorded in which this deformity was caused by disease of the abdominal

Fig. 268.



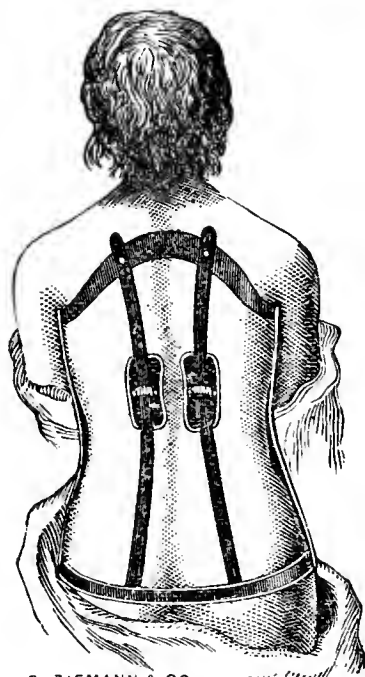
organs. But as I have intimated, it is generally due to a lack of tonicity of the dorsal muscles; or, as Dr. Hamilton, of Bellevue College, has expressed it, "a want of correspondence in the antagonism of those muscles which control the motions of the spinal column." Habitually sitting or standing in a *leaning* posture, thus constantly using one set of the dorsal muscles while the other becomes enfeebled by lack of exercise, is the commonest cause of this deformity. The habit which so many school-girls contract, of drawing one foot up under the body while sitting, invariably produces a lateral curvature of the spine.

1948. **Treatment.** In the incipient stage of the deformity, a slight, but oft-repeated pressure of the hand upon the right side will be sufficient to restore the spine to its normal position. But if the system is debilitated, the curvature will progress, unless the spine be supported and held in its normal position by a mechanical contrivance. To correct this deformity, many ingenious forms of apparatus have been devised. The appliance which has proved most beneficial in my practice is the one constructed by Messrs. Tiemann & Co., and is represented in Fig. 268. By a careful adaptation of this apparatus, we have corrected deformities which had been pronounced

permanent. But to make the treatment thorough and efficient, we must have the patient under our personal and constant supervision, for mechanical appliances alone will not suffice. The physical powers must be invigorated by such means as each case demands.

1949. **Posterior Spinal Curvature** (*Humped-back*). Posterior curvature of the spine is always due to the spinal affection known as *Pott's disease*. It occurs most frequently in children, and is generally developed before the seventh year. Children of a scrofulous diathesis are especially liable to this disease. The inter-vertebral substance becomes inflamed,

Fig. 269.



G. TIEMANN & CO.

Appliance for correcting Posterior Curvature of the Spine.

tuberculous matter is deposited therein, causing the inner portions of one or more of the vertebræ (see Part I of this volume, ¶ 32) to gradually crumble and waste away, and the other vertebræ necessarily incline to each other, thus producing the deformity known as a "humped-back."

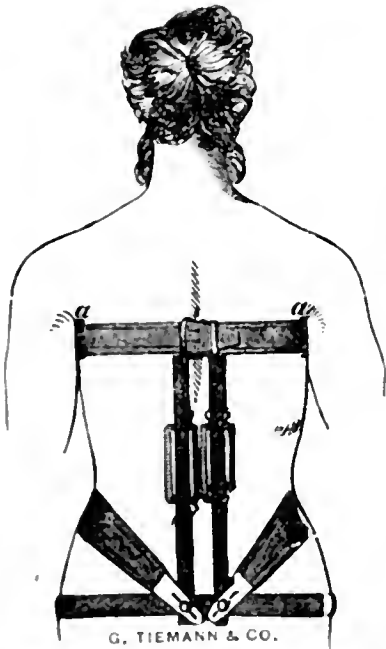
1950. **Causes.** The exciting cause is generally an injury caused by a blow or fall. In those cases in which it is developed very early in life, it may be of a purely scrofulous origin.

1951. **Symptoms.** If the disease be developed before the child begins to walk, a slight protrusion of one of the vertebræ will be first observed. Generally, however, the disease does not manifest itself until after the child begins to walk. It will be remarked that the child habitually walks with his head and shoulders and pelvis thrown backward, and, as he trips easily, he avoids lifting his feet from the floor. He also places his hands upon his hips while walking or standing, and has a habit of turning his toes inward. He may experience violent pains in the lower portions of the body, and have spasmodic contractions of the muscles during sleep.

1952. **Treatment.** This may be both mechanical and hygienic. Every measure must be adopted which will restore or

improve the general health. Constitutional treatment is especially necessary to impart the requisite tone to the system. Mechanical appliances are necessary to support the superincumbent weight. Rest should *always* be taken in the supine position. As in all other scrofulous diseases, hygienic rules must be strictly complied with. Daily exercise in the open air, plenty of sunlight, and a proper selection of wholesome diet, are the essential hygienic conditions. But in order that exercise may be taken, it is necessary that the back should be properly supported. Many forms of appliances have been contrived to fulfill this requirement. Two of these appliances are represented in Figs. 269 and

Fig. 270.



Appliance for correcting Posterior Curvature of the Spine.

270, the former known as Taylor's, and the latter as Davis's apparatus. Owing to the various developments of this deformity, one form of apparatus cannot be adapted to all, and the surgeon must exercise his ingenuity in selecting and adjusting the appliance suitable in each case. The patient must be under the surgeon's personal oversight, as the appliance must be re-adjusted from time to time. With the completion of the Invalids' Hotel, we shall possess unusual advantages for treating cases of this deformity, as well as of all others.

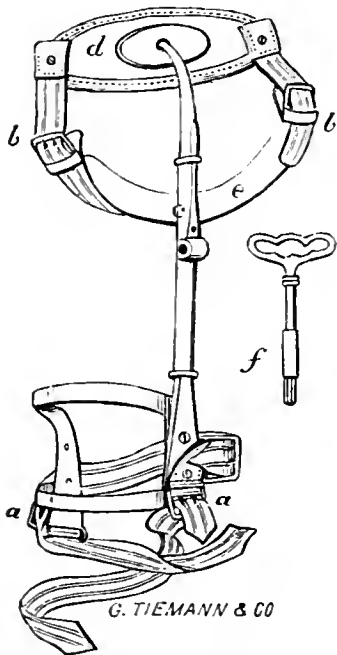
1953. **Hip-Joint Disease.**

On pages 442 and 443 of this volume, the reader will find an explication of the character and causes of this

disease, and an accurate description of its symptoms, together with the requisite suggestions for its proper medical and hygienic treatment. I here propose to briefly consider its *surgical* treatment. Mechanical appliances are of little or no value when the disease has reached its last stage, namely, that of suppuration and adhesion of the bones. But while the disease is in its first or even second stage, these are necessary to secure perfect immobility of the limb and hold the parts in their normal position. The disease tends to produce a rotation of the limb, and the

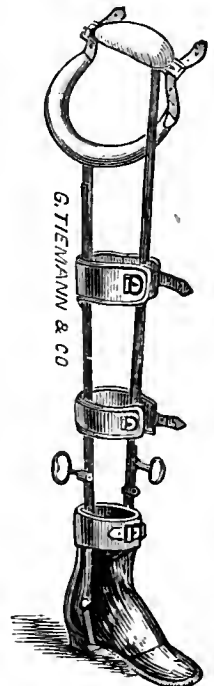
appliance prevents this distortion, besides being so contrived as to produce an extension of the limb and secure for that mem-

Fig. 271.



ber absolute rest. Fig. 271 represents Sayres' apparatus, or splint, which has proved eminently beneficial in my practice. By many eminent surgeons, this splint is considered superior to all others, and has been used in extremely aggravated cases with the most gratifying results. I also use the splint introduced by Bauer (see Fig. 272), and find that it admirably fulfills the two essential requirements, namely, preventing the slightest movement of the joint, and securing the requisite tension of the limb. In those rare instances in which the disease still progresses after the proper medical and surgical treatment has been applied, an excision of the head of the thigh-bone will almost entirely correct the deformity

Fig. 272.



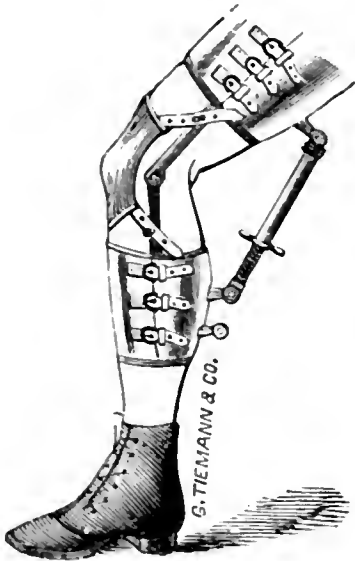
ity and insure the patient's restoration to health.

1954. **Anchylolosis** (*Stiffened Joints*). The partial or entire loss of motion of a joint is termed *anchylolosis*. When motion is only impaired, it is termed *false anchylolosis*. Before the introduction of anæsthetics, it was almost impossible for the surgeon to determine whether the anchylolosis was *false* (produced by a fibrous adhesion), or *true* (caused by an osseous, or bony adhesion). During the examination of cases of anchylolosis, the patient must be placed under the influence of an anæsthetic, to prevent all voluntary resistance. True anchylolosis is corrected only by surgical treatment. False anchylolosis is much more frequent.

1955. **Treatment.** The mechanical treatment of anchylolosis must be cautiously applied, even by the most skillful surgeon. Fig. 273 represents a form of apparatus which I apply for the gradual

extension of the limb, and thus break the adhesions. It is generally efficient in overcoming unnatural muscular contractions

Fig. 273.



Apparatus for the correction of Anchylosis. (Gradual extension.)

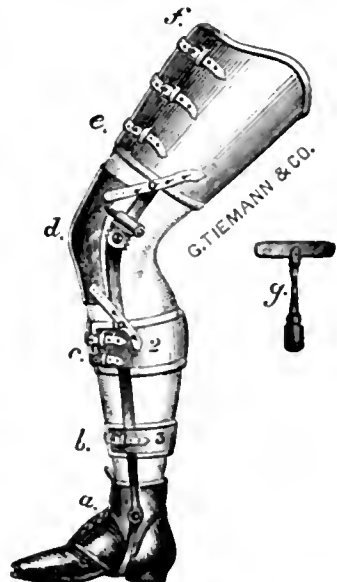
caused by injuries of the joints. Fig. 274 is also admirably adapted to the forcible extension of the limb. When the adhesions are forcibly broken, swelling and inflammation always result. The patient must, therefore, be under the most skillful medical treatment and confided to the care of experienced nurses. To gradually overcome the adhesion, the limb must be extended a little each day, and the patient placed under the influence of an anæsthetic during the operation. I have operated in several cases of this deformity, and in all with the most gratifying success.

1956. **Knock-Knee.** The outer muscles and ligaments connecting the thigh and leg bones sometimes become weakened, causing an undue contraction of the inner tendons, so that the knees are drawn inward, as represented in Fig. 275. The deformity may be either congenital or caused by muscular debility.

1957. **Treatment.** When the deformity is recently developed, as in children, it can generally be overcome without the application of mechanical treatment. The child should not be allowed to walk or even stand upon its feet. The diet should be so selected as to furnish those materials which strengthen the muscles. When the patient will not remain in bed, or when the deformity is so developed that nature cannot correct it, a mechanical appliance similar to that represented in Fig. 275 should be adjusted by a skillful surgeon. If the deformity has been developed several

1956. **Knock-Knee.** The outer muscles and ligaments connecting the

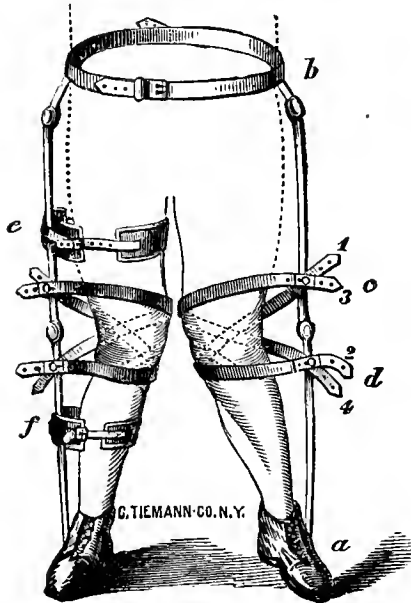
Fig. 274.



Apparatus for correcting Anchylosis by either gradual or forcible extension.

years, surgery affords the surest means of rectifying it. The operation consists in severing the contracted tendons subcutaneously.

Fig. 275.



Knock-knee and apparatus for correcting it.

1958. **Bow-Legs.** This deformity, represented by Fig. 276, is due to the softening of the bones, which are thus rendered incapable of supporting the weight of the body. It is an acquired deformity and is most frequently developed in children. Its mechanical treatment consists in the proper adjustment of a pair of bow-leg braces as illustrated by Fig. 276. The braces are so contrived that, while they afford the requisite support for the body, they gradually draw the limb into its natural position. As soon as the deformity is discovered, the requisite treatment should be instituted.

1959. **Talipes (Club-Foot).** This deformity is generally congenital, but it may be acquired. It is developed in various forms, the principal ones of which are termed *talipes varus*, *equinus*, *valgus*, and *calcaneus*. Two of these forms are sometimes combined, as in the one which has received the name *talipes equino-varus*.

Fig. 276.

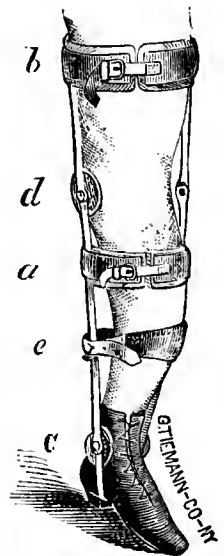


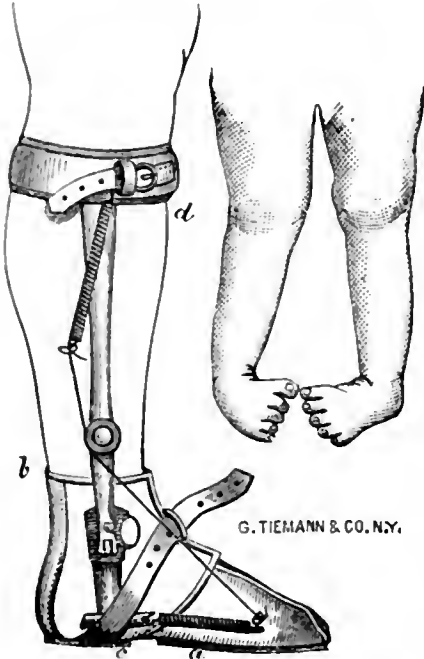
Fig. 277 represents the position of the feet in double *talipes varus*. It will be observed that the toes turn inward, and the foot is partially rotated on its long axis, so that it rests upon the outer edge of the tarsal bone.

In *talipes equinus* (see Fig. 278) the heel is drawn upward by the undue contraction of the tendon of Achilles (the tendon or cord which can be distinctly felt at the back of the foot). The toes are also bent into an unnatural position, and are the only parts which rest upon the floor. This deformity is generally acquired. It may be caused by chronic muscular

rheumatism, and is also produced by paralysis of the extensor muscles of the foot.

Talipes valgus is the reverse of *talipes varus*, and the extent

Fig. 277.



Talipes Varus and appliance for correcting the same.

of the malformation varies from the simple "flat foot" to those forms in which the entire sole of the foot is turned outward.

Talipes calcaneus (see Fig. 280) is the reverse of *talipes equinus*. It is usually congenital, but may be produced by paralysis of the sural muscle. In this deformity only the heel rests upon the ground, while the toes point upward.

1960. **Treatment.** When the deformity is congenital, it may be at first so slight that the parent or nurse can correct it by simple manipulation. But if it still progress, it should be immediately submitted to a skillful surgeon. In its early stages, it will almost invari-

Fig. 278.



Talipes Equinus.

ably yield to mechanical treatment. Messrs. Tiemann & Co.'s appliance for *talipes varus* is represented in Fig. 277. By a careful adjustment of it, I have rectified several highly-developed cases of this deformity. By a simple reversion of pressure it is equally efficient in correcting *talipes valgus*. The appliance for correcting *talipes equinus* is represented in Fig. 281. For this ingenious contrivance our thanks are also due to Messrs. Tiemann & Co. A similar appliance, with the pressure reversed, is used to correct *talipes calcaneus*. The efficiency of these appliances depends upon their proper adjustment and re-adjustment. An improper adjustment will lead to injurious results, and the pressure must be on the deformity.

Only a person who

is experienced in the use of these appliances can suitably adjust them in each individual case, and the patient should be constantly under his personal supervision. We often resort to the ingenious

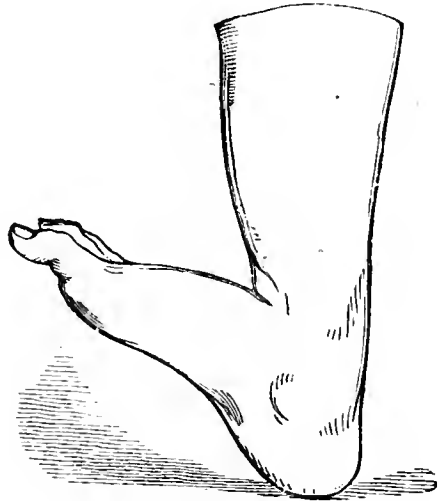
Fig. 279.



G. TIEMANN & CO

Talipes Valgus.

Fig. 280.

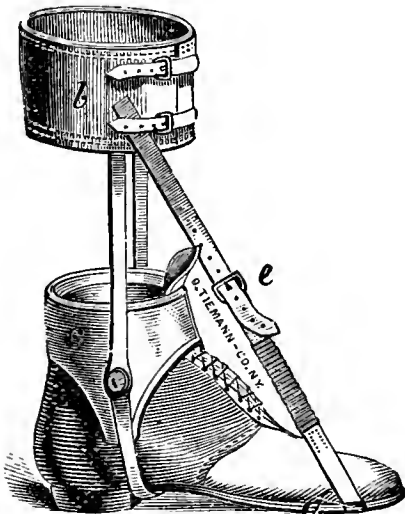


G. TIEMANN & CO

Talipes Calcaneus.

method devised by Mr. Barwell, which consists of the application of strips of adhesive plaster, held in position by strips of tin and circular strips of plaster. The requisite pressure is obtained

Fig. 281.



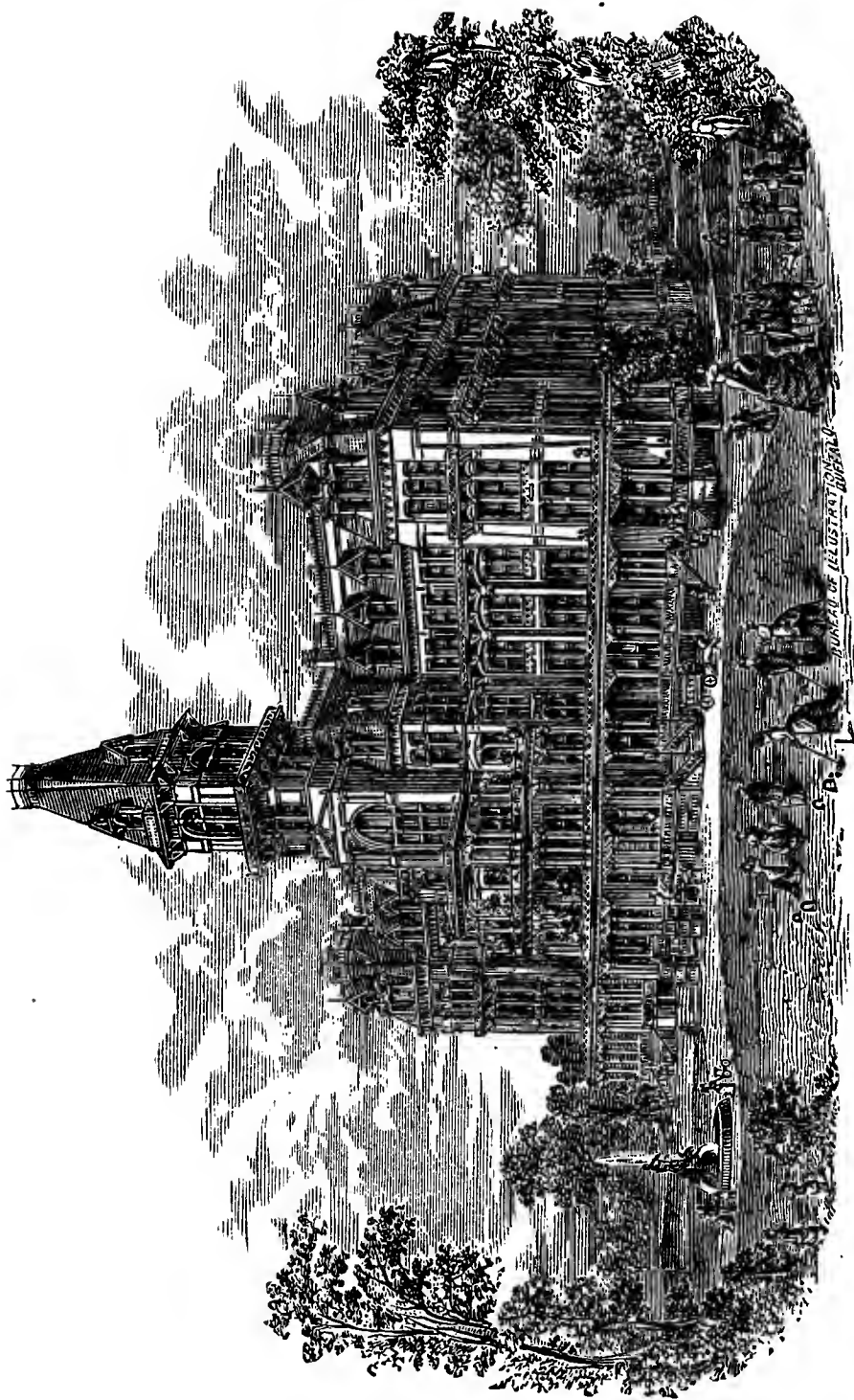
Appliance for correcting Talipes Equinus.

by the application of rubber tubing and chains. The rubber tubing produces a perfect tension, acting as a counter-muscle; hence it has received the name of *artificial muscle*. Obviously the strips of plaster require frequent re-adjustments. When the deformity resists all mechanical treatment, it can be rectified by the surgical operation known as *tenotomy*, which consists in severing the contracted muscle subcutaneously. But this is seldom necessary. There are no deformities more humiliating than those which impede or prevent locomotion, and

modern invention has given no surer proof of her devotion to

the interests of humanity, than the ingenious contrivances she has devised to correct them.

1961. **Conclusion.** For the successful treatment of these deformities two essential conditions must be observed: (1) The surgeon must ascertain the cause of the deformity, and then apply the proper medical or surgical treatment. (2) When mechanical appliances are used, they must be frequently re-adjusted, as they are liable to be displaced, besides the constant lessening of the deformity admits of an increased pressure. For this reason the patient should be so situated that the surgeon can examine him frequently, daily if necessary, have the sole direction of his habits, and even the selection of his diet. To this class of patients, the Invalids' Hotel affords unsurpassed advantages. While enabling me to conduct the necessary treatment properly and thoroughly, it also offers every comfort and even pleasure that can be desired. The pleasant surroundings will direct the patient's mind into agreeable channels, thus removing one of the greatest obstacles to treatment, for as the mind exaggerates pleasure, so it augments pain, and so long as the patient is despondent, recovery, even under the most skillful treatment, will be necessarily slow, and in some instances impossible.



INVALIDS' HOTEL, BUFFALO, N. Y.

THE INVALIDS' HOTEL.

1962. Some of our numerous patients require our personal attendance, and the sanitary influences of a pleasant home. This class of patients has become so large, that we are compelled to furnish a suitable boarding-home for them while they remain in the city. We have, therefore, contracted for the erection of a very large and commodious building, which we design to use for an Invalids' Hotel, or Hospital Department of the World's Dispensary. The Hotel will be located on one of the finest sites in Buffalo, commanding a view of all the principal portions of the city, while the entrance to the Buffalo Harbor, Lake Erie, and its far-famed outlet, the Niagara River, will also be visible from the balconies. The plan of the building embodies the latest style of architecture, admirably combining beauty and utility. It will also be constructed in strict accordance with the best sanitary rules, securing an abundance of light and pure air for the inmates. While our original system of treating diseases, solely through the medium of correspondence, has been uniformly successful, yet not unfrequently cases are brought to our attention which are so complicated and obstinate as to demand our personal attendance and treatment, besides all the benefit that can be derived from a strict observance of hygienic rules.

1963. Our practice also embraces the treatment of a large number of cases in which surgical operations are requisite, and it is often necessary that the patient should be confined to the bed for a few days subsequent to the operation. For this class of patients, our hospital department, with its experienced nurses and home-comforts, will afford the best facilities for a speedy recovery.

Every general practitioner labors under obvious disadvantages in treating certain obstinate diseases, for, to insure a recovery, the patient should be under his immediate observation, and intrusted to the care of competent n̄rses. The intelligent physician is deeply conscious that he fails to effect a cure in many cases, simply because his patients are not thus favorably situated. To afford these necessary facilities and advantages, the Invalids' Hotel will be erected. It will be situated on Prospect Avenue, one of the pleasantest thoroughfares in the city, and will be easily accessible to the business portion of the city, being only one block from the Niagara-street railway; yet the location is so retired that it furnishes that pleasing quiet sought at rural retreats. It thus combines the advantages of a city and a rural home. The invalid will there find those primary essentials of health, namely, fresh air, wholesome food, and delightful scenery. The perception of beauty not only elevates our moral nature and awakens noble and inspiring thoughts, but it also produces an agreeable exhilaration of the physical system. It is, therefore, especially necessary that the invalid should be surrounded by objects that please and delight the senses. Under their influence, the vitality—the mercury in the physical thermometer—gradually rises, indicating an increase of recuperative power. Due consideration was paid to these facts in selecting the site for the Invalids' Hotel. The Hotel fronts one of the oldest and finest parks in the city. It is handsomely ornamented with trees and shrubbery, and commands an extensive view of the river and lake. A walk of only two blocks down the Boulevard, takes the pedestrian to that portion of the park known as the "Lake Front," from which the shores of Canada can be distinctly seen. Fort Porter, with its inviting and finely ornamented park, and the interesting historical associations with which it is invested, is a pleasing retreat for the pleasure-seeker and lover of novelty. A walk of two blocks from the Hotel in the opposite direction upon the same Boulevard, leads the pedestrian to the "Circle" of the extensive park which has been recently laid out. This park embraces nearly five hundred acres, contains rare and ornamental trees, fountains, a miniature lake for boating, etc., etc., and, when completed, will compare very favorably with any similar park in the State. Being literally

surrounded by this beautiful scenery, the Invalids' Hotel will be a most attractive home for the invalid. The remarkable healthfulness of this city, attributable to its perfect drainage and elevated position, renders it an especially favorable place of resort for invalids. The summer season is exceedingly pleasant, the lake breezes serving to temper the atmosphere, and thus make it cool and bracing.

1964. The founder designs also to make the Hotel a *cheerful* home. The institution will be furnished with a commodious hall, in which frequent entertainments, such as musical *soirées*, readings, etc., will be held. Lectures on health culture and kindred topics of interest and importance to invalids will be frequently delivered by different members of the Faculty, that all may be made familiar with the means of aiding in the recovery of their health by correct living. A reading-room and library, supplied with the leading newspapers, magazines, and a selection of valuable and entertaining books, will constitute a pleasing feature of the Hotel. A gymnasium, provided with the most approved calisthenic apparatus, will afford ample facilities for physical culture. It will also furnish a means for proper recreation when inclement weather prevents the inmates from taking the requisite exercise in the open air. Ample opportunity will be offered for combined physical and mental amusement. All kinds of lawn and parlor games will be introduced, to be used *only* as a means of *healthful amusement*.

1965. The Hotel will be provided with all the remedial facilities of the best "water cure" establishments, as Turkish, Russian, Electric, and other baths; yet these hydropathic appliances will be used only as *auxiliaries*, for in all cases requiring it, medical or surgical treatment will be given. The Hotel will be provided with an elevator to convey the guests to and from the several floors. The upper apartments will be, therefore, quite as desirable as the lower ones. The tables will be supplied with all the delicacies of the season, and those kinds of food best adapted to invalids. In brief, the Hospital will be furnished with all the comforts found at the best modern hotels. While the rules of the institution will be sufficiently rigid to insure perfect order, yet all freedom consistent with the best interests of the inmates will be granted.

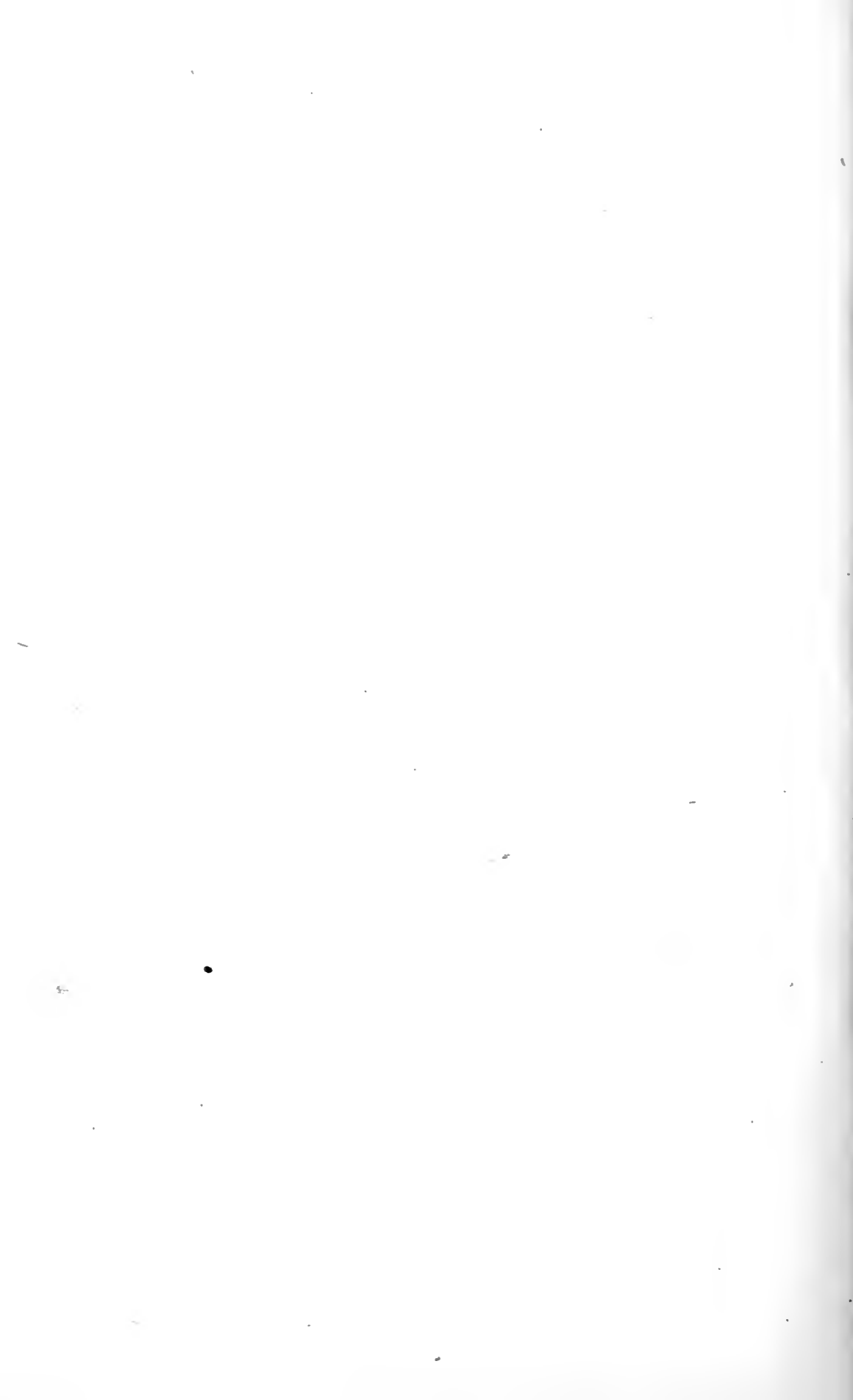
1966. A competent gentleman will have charge of the institution as resident physician, who will consult the members of the regular Faculty of the World's Dispensary in the cases belonging to their several departments, and in all cases which require it, the member or members of the Faculty will be in personal attendance.

1967. While we shall continue to treat chronic diseases, as heretofore, through the medium of correspondence (and many cases can be quite as successfully treated in that manner), yet this institution will greatly enlarge our sphere of usefulness, by enabling us to effect cures in thousands of cases, the treatment of which we could not undertake and insure relief by pursuing the former method of practice. In many cases, treatment received during only a few weeks will be far more efficient than that of several months, or even a year, according to the former method. Especially is this true in surgical cases, in which the after-treatment, nursing, etc., is quite as important as the operation itself. The unsuccessful and even fatal results which sometimes attend surgical operations are oftener attributable to the improper subsequent treatment than to carelessness or incompetency in the surgeon. Eminent surgeons realize this fact, and insist that their patients shall be intrusted to the care of competent and trained nurses. Education and experience are essential to the skillful nurse. A genial temperament and an ability to cheer the despondent are also requisite, as I have explicitly shown in a former portion of this work. Only such nurses as possess these qualifications will be employed at the Invalids' Hotel.

1968. If persons who come to the city to consult us, arrive after 8 A. M., or before 5 P. M., they should come directly to the *World's Dispensary*, which is situated but a short distance from all the principal depots. If arriving earlier than 8 A. M., or later than 5 P. M., they should go directly to the Invalids' Hotel either by carriage or *via* the Exchange-street and Niagara-street railways, the Hotel being situated only one block from the latter. They will there be hospitably received by the proprietor, who will duly notify the Faculty at the Dispensary of their arrival.

1969. The terms for board and lodging will be moderate,

varying according to the rooms occupied and the duration of sojourn. The Hotel will be opened early in June, 1877. Until that time, our patients who come from a distance to remain for a time will be as comfortably provided for in hotels, boarding-houses, and private families, as it is possible for us to make them.



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VOICE OF THE PRESS.

From the Buffalo Express.

Engagement of Distinguished Medical Men.

Prof. J. R. Lansdowne, formerly Queen's Surgeon to Brisbane Hospital, also to the Brisbane Benevolent Asylum and Fever Hospital, and member of the Royal College of Surgeons, England, has, by recent engagement, been added to Dr. Pierce's Staff of Physicians and Surgeons at the World's Dispensary. Dr. Lansdowne is a graduate of the celebrated Royal College of Physicians, Edinburgh, is also a licentiate of the Faculty of Physicians and Surgeons of Glasgow, and for some time after his graduation held the position of House Surgeon to the General Hospital at Bristol, and was subsequently appointed Resident Physician to Longwood Lunatic Asylum. His father was for many years Senior Surgeon to the Bristol Hospital, a position which the Doctor's brother now holds, as well as lecturer on anatomy. These circumstances have afforded Dr. L. more than average opportunities for acquiring practical knowledge and skill. He is represented as a fluent lecturer on anatomy and surgery, both of which chairs he has filled with distinguished honor, and he brings with him testimonials of skill from some of the most eminent physicians and surgeons of Europe. We congratulate Dr. Pierce in having secured a man of such experience and skill on his medical and surgical staff.

The recent engagement, by Dr. Pierce, of

PROF. JNO. T. WALTON,

of Philadelphia, also furnishes another valuable accession to the Faculty at the World's Dispensary. Dr. Walton graduated at the medical department of the University of Pennsylvania in 1856. He was for several years the intimate friend and assistant of the late venerable Dr. Samuel Jackson, professor of the institutes of medicine in the University of Pennsylvania. At the breaking out of the late war, he was given a commission as surgeon of volunteers, and was subsequently promoted to the responsible position of medical director of the department of Middle Tennessee, with headquarters at Nashville. He has at different times held the several responsible positions of resident

physician at Will's Hospital for Diseases of the Eye, resident physician at the Pennsylvania Hospital for the Insane, and physician for diseases of the nervous system at St. Mary's Hospital Dispensary. He was elected professor of chemistry in the Pennsylvania State College, and has distinguished himself as a lecturer and teacher of chemistry, physiology, and clinical medicine.

By associating with himself only those physicians and surgeons who possess the most thorough qualifications and varied, extensive experience, Dr. Pierce is entitled to the utmost confidence of his patients, whose best interests he seems ever anxious to subserve.

The former members of the Doctor's Faculty, some of whom have been on his staff for several years, have all been re-engaged, and will form, with the new accessions, a strong combination of medical and surgical talent.

From the Glenwood (Iowa) Opinion.

The following is from a two column article, in the *Chicago Times*, on Dr. PIERCE'S DISPENSARY:

"Like most men who think much and deeply, he wears a habitual reserve, that does not chill, but rather inspires confidence. Endowed with the highest conversational talents, he is a man whose instructive modesty keeps him silent when emptier heads would babble. But let the theme touch his heart, or interest especially his mind, and he warms into life quickly, and fascinates all around him.

In business matters, or in giving instructions to his subordinates, he is brusque and notably quick in his manner. But, above all other characteristics, one is impressed with the earnest benevolence and warm heart of the man, that shines through the wrappings of the successful business man, the learned physician, and the famous author. The "touch of nature" that "makes the whole world kin." A noble presence; a bright, kindly, intellectual eye; firm, classic profile, a flowing beard; a sharp, incisive, yet polished manner,—such is the man. What his work may grow to be no one can tell. With astounding success, he has waged his battle to prove to mankind, and especially to its suffering children, that to combine under one chief the talent and experience of a body of specialists is the true way to practice the healing art. Around him he has gathered a band of trained physicians, each one of whom would be eminent in his own specialty, if he had not chosen to merge his own success and his own greatness in that of the famous

institution of which he is a part. Trained physicians as they are, no taint of quackery hangs about them. To them the suffering may go in assured confidence that they will meet only kindly sympathy and the highest skill, and that all that man can do for them will be done by Dr. PIERCE and the Faculty of the World's Dispensary."

From the Republican, of St. Louis, Mo.

Among the notable physicians of this country, Dr. R. V. PIERCE, of Buffalo, stands deservedly high. He has obtained professional eminence through strictly legitimate means, and fully deserves the enviable reputation which he enjoys. A thorough and careful preparation for his calling, and extensive reading during a long and unusually large practice, have made him extraordinarily successful in his private practice, and gained the commendation even of his professional brethren. By devoting his attention mainly to certain specialties he has been rewarded in a very great degree, and in these lines is recognized as a leader. Not a few of his preparations compounded for these special cases have been adopted and are used in their private practice by physicians throughout the country, and his pamphlets and larger works upon these subjects have been welcomed as valuable additions to materia medica, and placed among the regular text-books of many medical schools. Acknowledgment of the services which he has performed for medical science has been made by presentations of degrees from two of the first medical institutions of the land, and by the translation of several of his works into German, Spanish, and other foreign languages. The increasing demand for his specifics, some time since necessitated the opening of a regular Dispensary for their preparation, and from a small beginning the business of this establishment has now grown to mammoth proportions.

From the Chicago Times.

The name of Dr. R. V. PIERCE has become as familiar to people all over the country as household words. His wonderful remedies, his pamphlets and books, and his large medical experience, have brought him into prominence and given him a solid reputation. The *Times*, in the present issue, presents a whole-page communication from Dr. PIERCE, and our readers may gain from it some idea of the vast proportions of his business and the merits of his medicines. He has at

Buffalo a mammoth establishment, appropriately named "The World's Dispensary," where patients are treated, and the remedies compounded. Here nearly a hundred persons are employed in the several departments, and a corps of able and skilled physicians stand ready to alleviate the sufferings of humanity by the most approved methods. These physicians are in frequent consultations with DR. PIERCE, and their combined experience is brought to bear on the successful treatment of obstinate cases. The doctor is a man of a large medical experience, and his extensive knowledge of materia medica has been acknowledged by presentations of degrees from two of the first medical colleges in the land. How meritorious his works are, may be inferred from the fact that his pamphlets and books have been translated into German, Spanish, and other foreign languages, and have been in heavy demand.

From the St. Louis Journal.

Justly Earned Celebrity.

In these days of quack doctors and quack medicines, the remarkable success and celebrity attained by Dr. R. V. PIERCE, of Buffalo, and his medicines, is something to be surprised at. Suffering humanity has been fooled so much by spurious remedies, that those upon whom sickness has been visited have learned to examine well the medical credit of a person advertising patent medicines, before trying the article. Quacks find hard work nowadays in achieving success; they may be able to make a spurt at first, but substantial and continued success is achieved only by those who have a really meritorious article to offer. Probably no man now living has been the means of saving more lives, by the use of a preventive and curative medicine, than Dr. PIERCE, and surely no man is more widely known throughout the country than he is. His medicines are sold at every drug store, and the unlimited demand is such as to keep his extensive manufacturing facilities at Buffalo constantly employed to their fullest capacity.





